

Wiltshire Highway Investment Plan 2024/25



March 2024

Wiltshire Highway Investment Plan 2024/25

Executive Summary

Extreme heat, flooding and severe winter weather have caused significant damage to some of Wiltshire's roads in recent years. This has needed additional resources to be deployed to address potholes and defects in the short-term, and in the longer term requires a significant investment and expanded programme of planned road repair and resurfacing.

The condition of the county's 2,829 miles (4,554 km) of roads has been improving in recent years but has been adversely affected by the extreme weather. Despite the recent deterioration, the condition surveys indicate that the overall condition of Wiltshire's Classified Road Network (A, B and C Class Roads) is similar to, or better than, the average road conditions in other South West highway authorities, and is better than the national average.

In response to the damage to the road network nationally, the Department for Transport (DfT) has increased funding for 2024/25 with the Council receiving funding from the Highways Maintenance Block and Pothole Fund (£20.7m) and the recently announced Road Surfacing Fund (£2.6m in 2023/24 and £2.6m in 2024/25).

This is being augmented by Wiltshire Council's own additional capital funding (£10m over two years) and represents a significant investment in maintaining the county's road network.

A variety of surfacing processes and treatments will be used which have been selected based on technical surveys and site inspections to ensure cost effective maintenance of the carriageways and to address identified road safety issues. The council has robust processes in place to monitor road conditions and skid resistance in order to identify priority sites in need of treatment, which can be included in a substantial programme of planned works.

The Council coordinates its work on the road network with that of the public utilities and others to avoid abortive work and to prevent unnecessary damage. Where works by public utilities take place on the network, a robust inspection regime for works and reinstatements is in place.

The Council remains committed to the good management of its highway assets and has been implementing asset management principles for many years and will continue to innovate, apply, and develop good asset management practices, leading to more effective management of the network.

An extensive programme of road surfacing and treatment has been developed for 2024/25 (See **Appendix B**), and a provisional surfacing programme has been identified for future years.

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Appendix A – Budget Allocations

Appendix B – List of Proposed Schemes for 2024/25

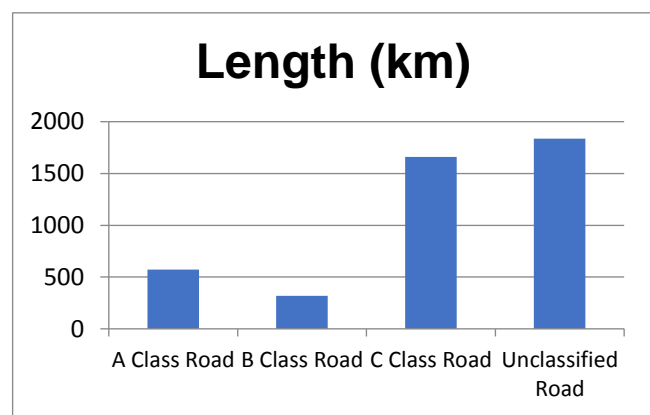
Introduction

Most of the road network in Wiltshire is the responsibility of Wiltshire Council as local highway authority. The motorways and trunk roads (M4, A303, A36 and A419) are the responsibility of National Highways, and there are some private roads owned by housing associations, businesses and the Ministry of Defence.

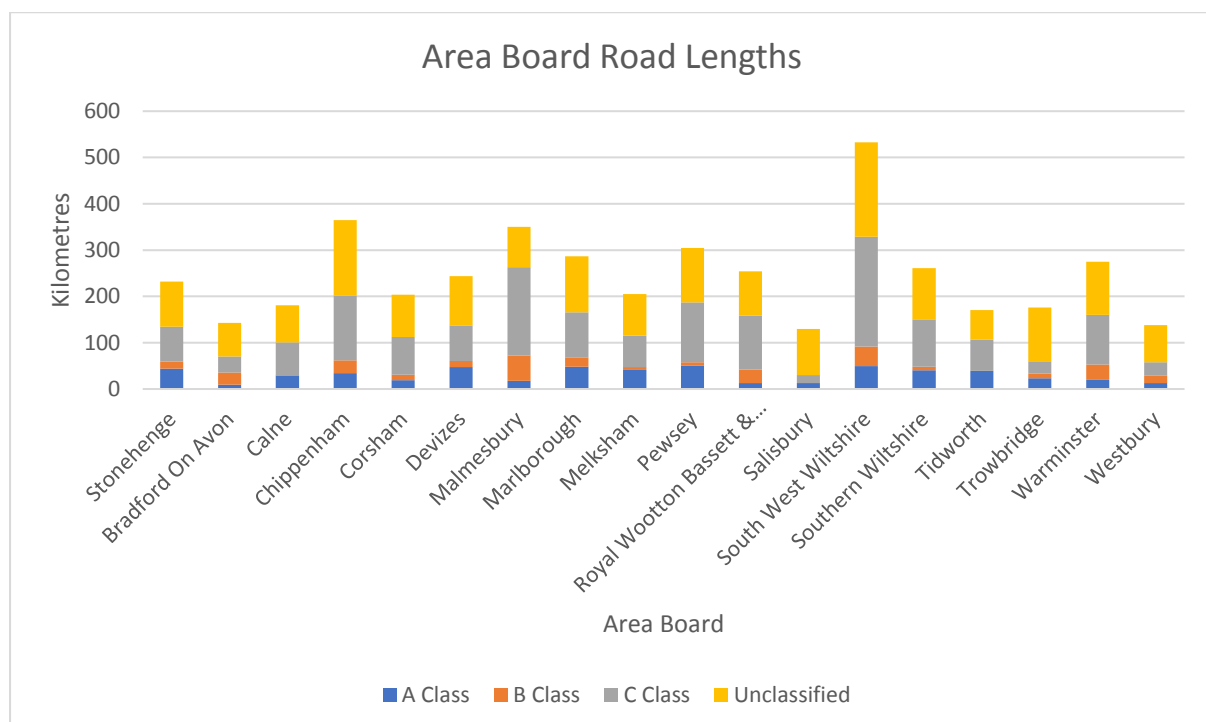
The local highway network in Wiltshire comprises over 2,829 miles (4,554 kilometres) of road which are vital for businesses and communities. The highway infrastructure in Wiltshire is the Council's most valuable asset and its lack of availability can have a considerable impact on communities and the economy.

The A and B class roads are a small proportion of the network but they carry the most traffic and have a higher number of accidents.

Description	Length
Principal A Class Road	557km
B Class Road	321km
C Class Road	1,669km
Unclassified Road	2,007km
Total	4,554km



The lengths of road in each Area Board vary considerably, with different proportions of road types, topography, and geological conditions.



The condition of the roads is important to the public as is clearly demonstrated by the results of the annual National Highways and Transportation (NHT) surveys and the concerns about their condition expressed by road users, residents, and organisations.

The county's roads have mainly evolved over the years, with only a small proportion having been designed and constructed to accommodate modern loadings and traffic volumes. In the past there has been under investment in maintaining the highway network nationally, which resulted in a backlog of maintenance and consequently road maintenance has been a challenge, especially in extreme weather conditions.

Wiltshire Council recognises the importance of maintaining and managing its highway network effectively and has been making significant investments in improving the condition of its highway assets.

The Council is committed to the good management of the highway asset and for many years has been implementing asset management principles set out in 'Well-managed highway infrastructure: a Code of Practice' commissioned by the Department for Transport and prepared by the UK Roads Liaison Group. The Council will continue to apply these and develop good asset management practices, leading to more effective management of the network.

Wiltshire's Highway Asset Management Policy was originally adopted by the Council's Cabinet in 2015. It is a high-level document which established the Council's commitment to infrastructure asset management and demonstrated how an asset management approach aligns with the authority's corporate vision and strategic objectives.

The adopted 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 policy remains relevant to the management of the highways assets and guides the development of this investment plan.

Weather damage to the road network

The periods of extreme weather in recent years have caused extensive damage to the roads in some locations and seriously accelerated their deterioration. The periods of hot summer weather, particularly in 2022, caused high road surface temperatures, resulting in some surfacing materials starting to melt and deformation occurring in some of the usually more robust surfaces.

High rainfall and flooding have also caused damage, and this has been exacerbated by cold weather causing freeze and thaw cycles, particularly over the winter 2022/23, which have resulted in some roads starting to disintegrate and potholes and other defects to form.

The increase in the number of potholes has been a problem nationally and has been reported in the press, media, and by the motoring organisations who have been particularly concerned about increased vehicle damage and safety implications. Wiltshire has also experienced a significant increase in potholes recently.

Potholes and carriageway defects

The potholes, damage or delamination of the surface are often concentrated where public utilities have previously excavated in the road and where there are local ground conditions or weaknesses in the road construction.

Regular Safety Inspections of the highway network are carried out by the Council's highway teams to identify defects likely to create danger or serious inconvenience to users of the network or the wider community. Other defects are reported by the public through the MyWilts online reporting system. Some defects require urgent attention within 24 hours, but there are those where the locations and sizes are such that longer periods of response are acceptable.

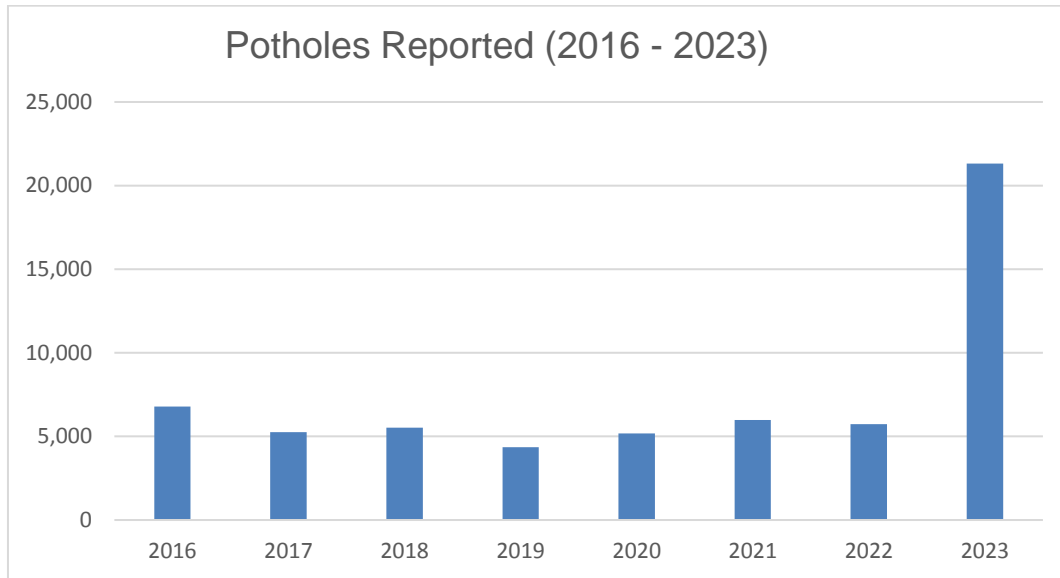
Resurfacing a road rather than repairing individual potholes would give a better appearance and last longer. However, there are significant costs associated with resurfacing roads, and it is not feasible to resurface roads when a repair is required immediately. Sometimes a repair using tub material, or smaller repairs by a mobile repair gang or Parish Steward, are needed to keep the roads safe until they can be scheduled as part of the ongoing road surfacing or repair programmes. The repairs may not look attractive, but their purpose is to keep the road safe.



Often a repair using tub material is needed to keep the road safe. These repairs may not look attractive, but they do help to keep the road safe.

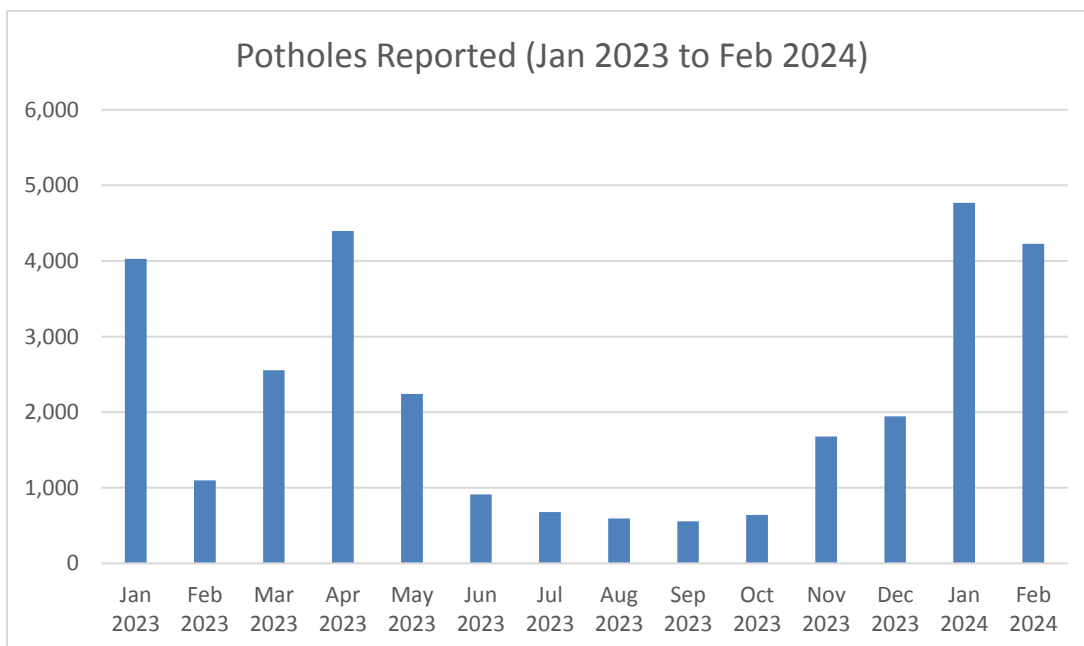
Pothole Reports

The number of reports of potholes on the road network increased dramatically in 2023 following the hot and dry summer periods, very cold winter weather and persistent heavy rain.



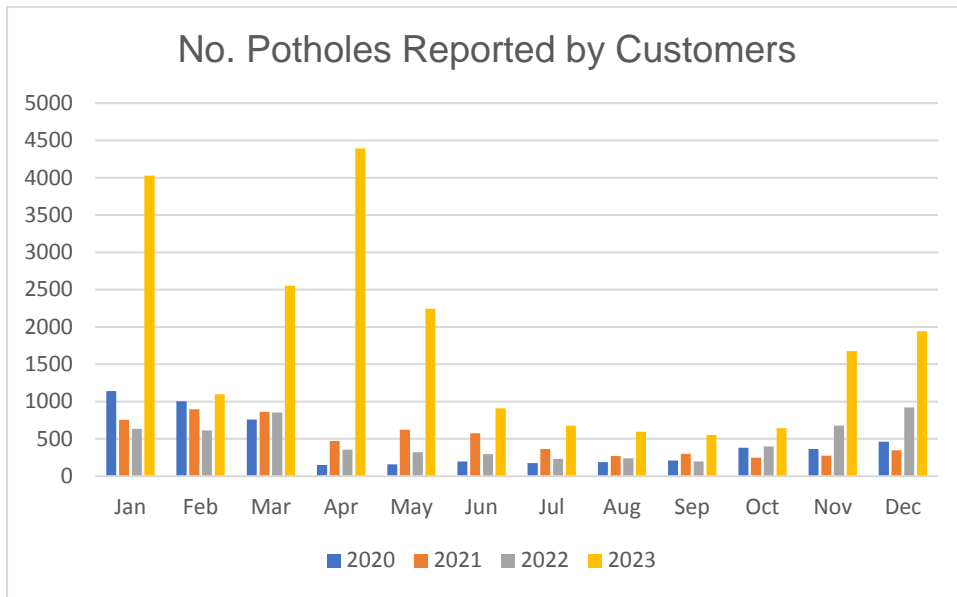
The number of potholes reported by the public increased from an average of about 5,500 per year in the previous 7 years to over 21,000 in 2023, which may include some duplicate reports but is still a significant increase.

In 2023 the number of pothole reports followed the familiar pattern of increased numbers following the winter, but there was also a significant spike in reports in the spring because of weather damage which greatly exceeded the usual number of reports at that time of year.



The number of pothole reports in the first two months of 2024 have increased significantly and are even higher than those in the same months in the previous year.

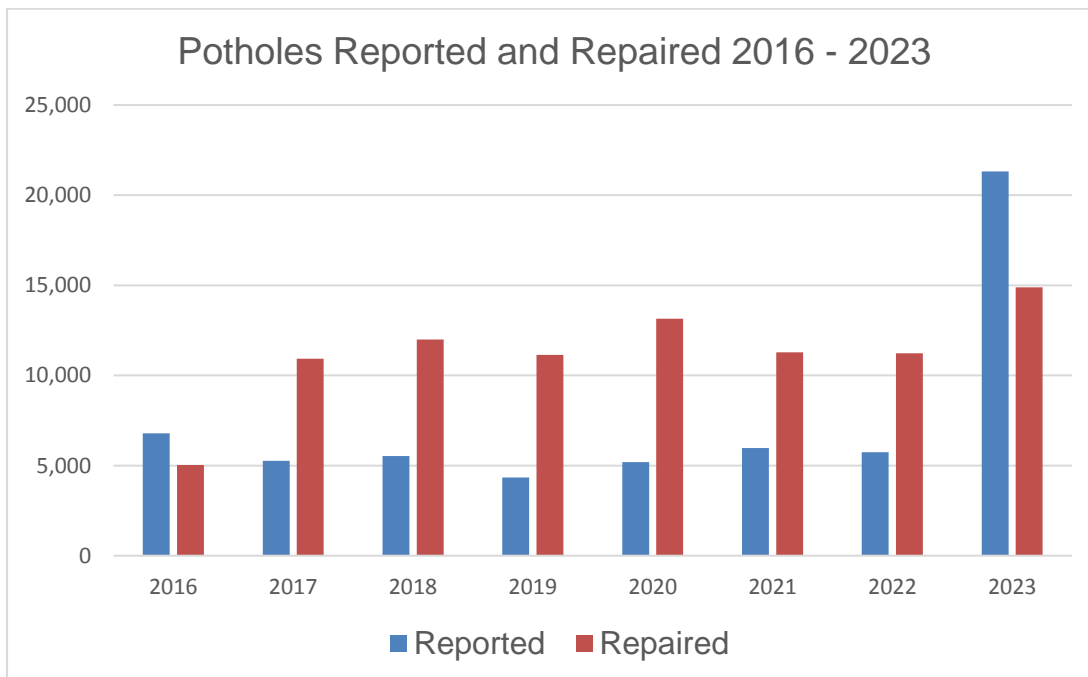
The number of pothole reports in 2023 for each month were higher than for the equivalent months in previous years, and in some months was significantly higher.



This trend of above average pothole reports is continuing into the start of 2024.

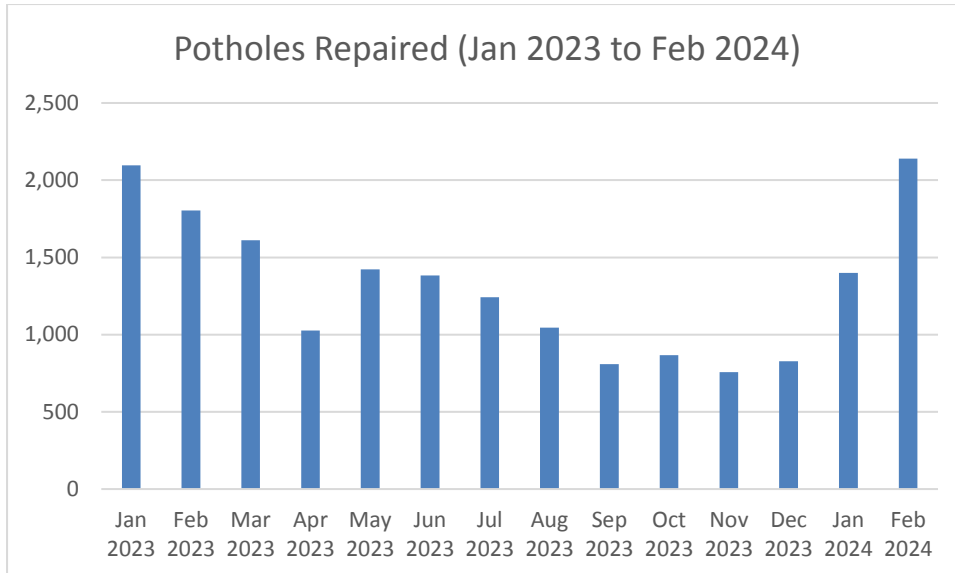
Pothole Repairs

Since 2016 the number of potholes being repaired by the council has significantly exceeded the number being reported by the public as safety inspections have identified and repaired many of the potholes before they were reported.



In 2023 this situation changed when despite more potholes being repaired there was a massive increase in pothole reports, which far exceeded the number being repaired. This was also experienced by most other highway authorities and the increase in potholes was widely reported in the press and the media.

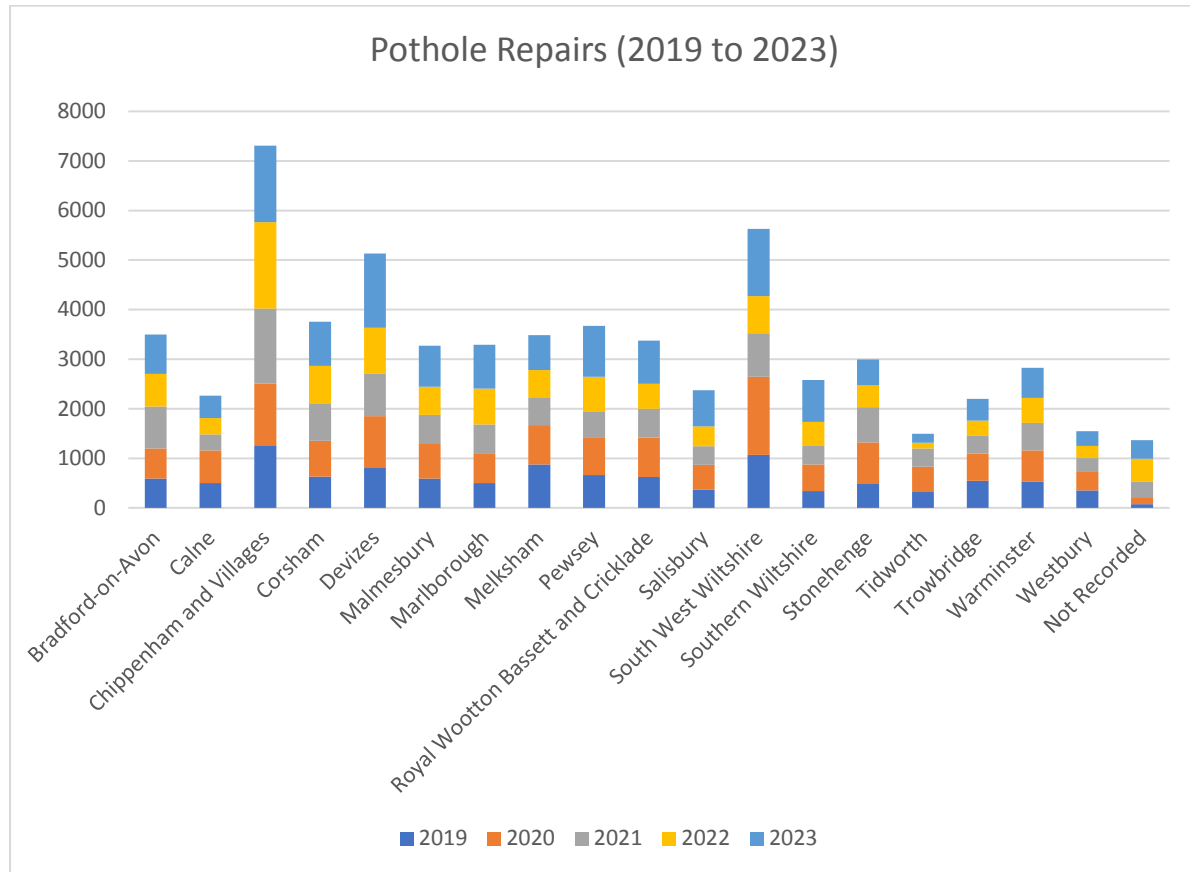
At times of increased potholes on the roads, additional resources are diverted to pothole repairs. As well as the usual teams working to fix potholes, the council sometimes diverts its Parish Stewards or other resources to focus on mending potholes, but this does adversely affect the delivery of the other services they provide.



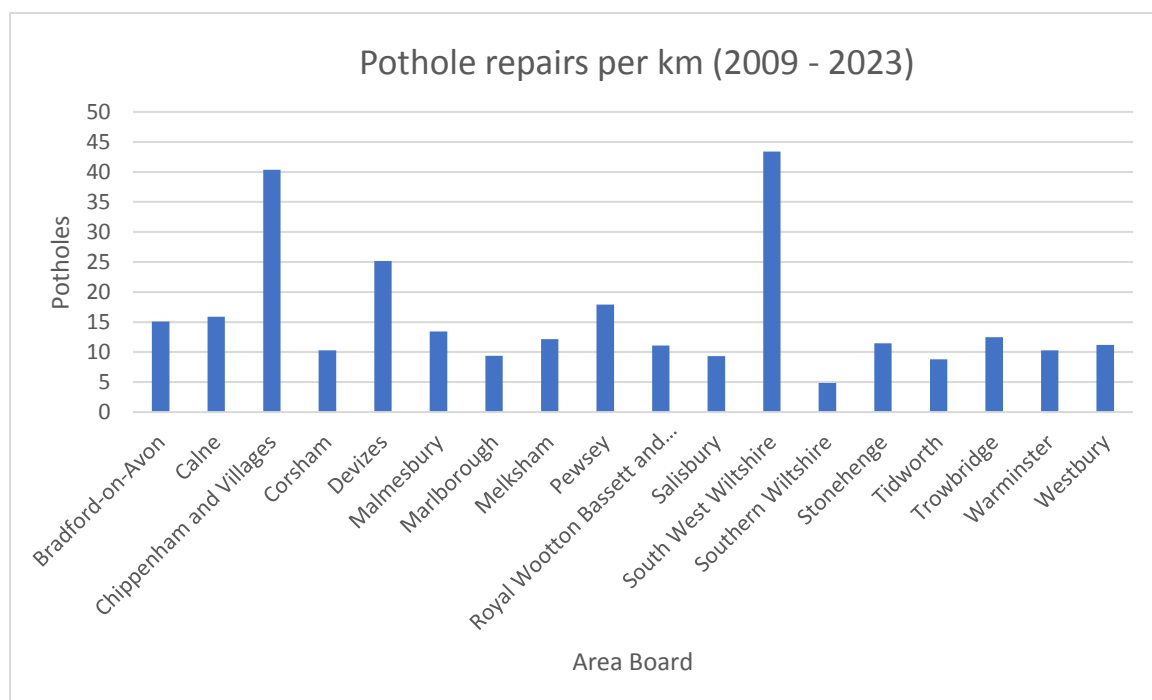
In order to catch up with the recent increase in potholes, resources have been increased in order to ramp up the number of repairs being undertaken.

Potholes by Area Board

The number of potholes on the roads in each Area Board varies from year to year. Over the last five years Chippenham has had the most pothole repairs, followed by South West Wiltshire and Devizes.



The number of pothole repairs per kilometre of road between 2009 and 2023 were highest in the Chippenham and South West Wiltshire Area Boards.



Potholes and Road Classifications

The numbers of potholes on the different classifications of road were analysed for last financial year (2022/23). It should be noted that the number of potholes in 2023/24 is likely to be considerably higher, and the distribution may be slightly different, but the 2022/23 figures do give an indication of the distribution. The number of potholes by road type in Wiltshire for 2022/23 were:

Road Class	Percentage
A	19.01%
B	10.51%
C	35.32%
UC	35.16%
Total	100.00%

The C Class and Unclassified roads had over 70% of the potholes in 2022/23, but it should be noted that the A and B Class roads had the highest number of potholes per kilometre.

Road Class	Potholes	Length (km)	Potholes per km
A	2,026	557	3.64
B	1,120	321	3.49
C	3,765	1,669	2.26
UC	3,748	2,007	1.87

The expenditure on pothole repairs in 2022/23 was £904,304.51, which represented an average cost of £84.84 per pothole. In addition, there was expenditure of £544,243.59 on larger patching and localised carriageway repairs.

The expenditure on reactive repairs in 2022/23 was about 11% of the carriageway maintenance budget which was broadly in line with previous years. In general, repairing potholes is less cost effective than resurfacing, but is sometimes necessary in order to keep the roads safe until planned maintenance can be carried out.

Whilst there is a case for increasing funding for pothole repairs, it should be noted that in the longer term this would be less cost effective than a programme of surfacing and planned maintenance.

The best way of reducing the number of potholes would be to improve the overall condition of the road network. Having a good understanding of carriageway conditions is vital in order to be able to target major repairs effectively and use the available resources in the most cost-effective way.

Road Condition Surveys

The road network is surveyed to determine its condition and identify sites for treatment. These surveys also enable road conditions to be benchmarked against other local authorities using on the Department for Transport (DfT) approved methodologies.

The surveys used are the Surface Condition Assessment for the National Network of Roads (SCANNER) surveys, which were developed to provide a consistent method for measuring the road surface condition of classified roads in the United Kingdom. The survey helps build a detailed knowledge of the current road condition and provides data that can be used to help inform and improve maintenance decisions.

The SCANNER survey collects surface and geometric data using vehicle mounted lasers and downward facing cameras. Forty-three parameters are collected and reported including:

- Road roughness (profile variance)
- Transverse profile and rut depths
- Alignment (horizontal radius, gradient and crossfall)
- Edge condition
- Cracking
- texture

A ruleset of thresholds and weightings is applied to the data to produce a Road Condition Indicator (RCI) score which characterises the condition of the road network based on three categories from good to poor. This score is reported to the Department for Transport as a percentage of the network that falls into each of the three categories.

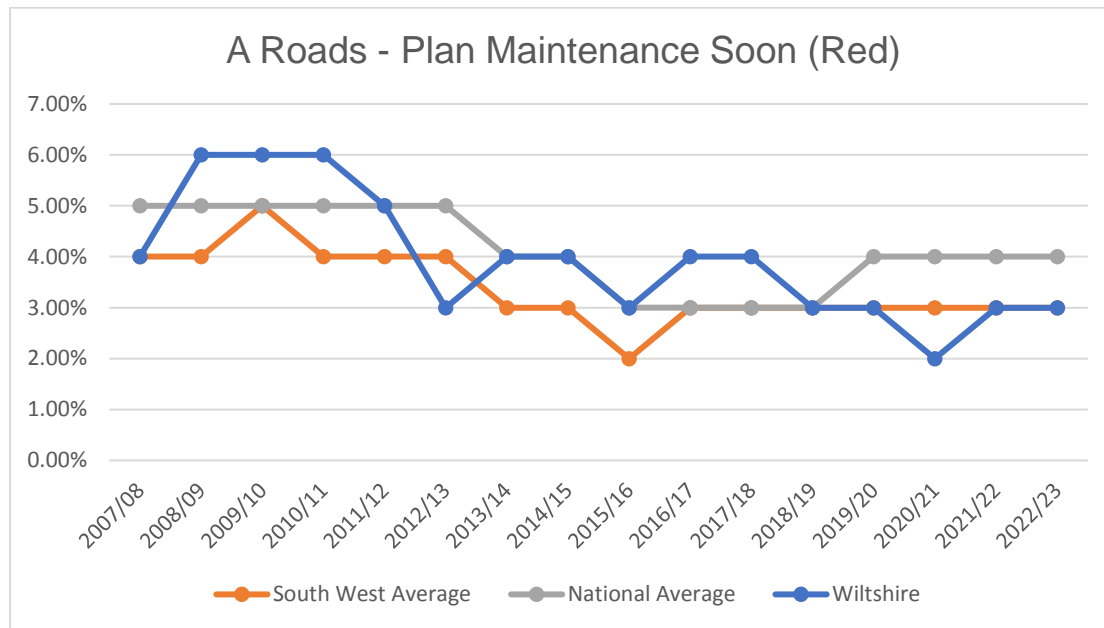
The RCI score parameters and category definitions are described as:

RCI Score	Definition and Condition	Colour
<40	Lengths where the carriageway is generally in a good state of repair.	Green – Generally good condition
40 to 100	Lengths where some deterioration is apparent which should be investigated to determine the optimum time for planned maintenance treatment. There may be justification for carrying out lesser maintenance treatment sooner, rather than more extensive treatment later, in order to minimise whole life costs.	Amber – Plan investigation soon
>100	Lengths in poor overall condition which are likely to require planned maintenance soon on a worst first basis. There may be justification for postponing major repairs and only carrying out minor repairs to keep the road safe and serviceable, in order to minimise whole life costs i.e. economic prioritisation.	Red – Plan maintenance soon

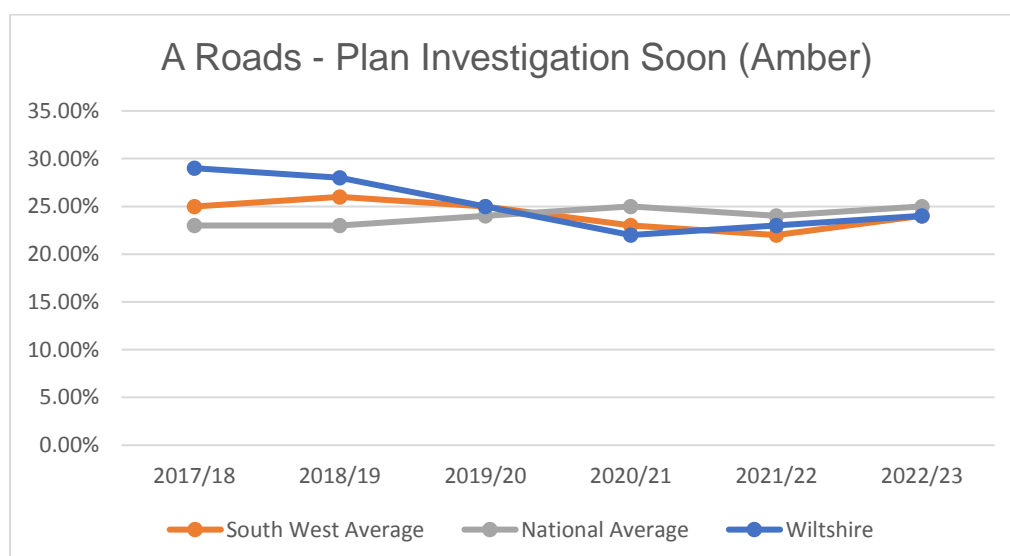
Road Conditions in Wiltshire

Condition of A Class Roads

The surveys show that the overall condition of the A Class roads in Wiltshire has been improving and is better than the national average. Based on the latest DfT published data, the percentage of the A class roads in Wiltshire scoring Red (poor condition) is now the same as the South West England average (3%), and better than the national average (4%). The lower the percentage the better the overall condition of the roads:



The roads that should be investigated for maintenance (Amber) are also important because these are the roads that are most likely to deteriorate into poor (Red) condition in the future.

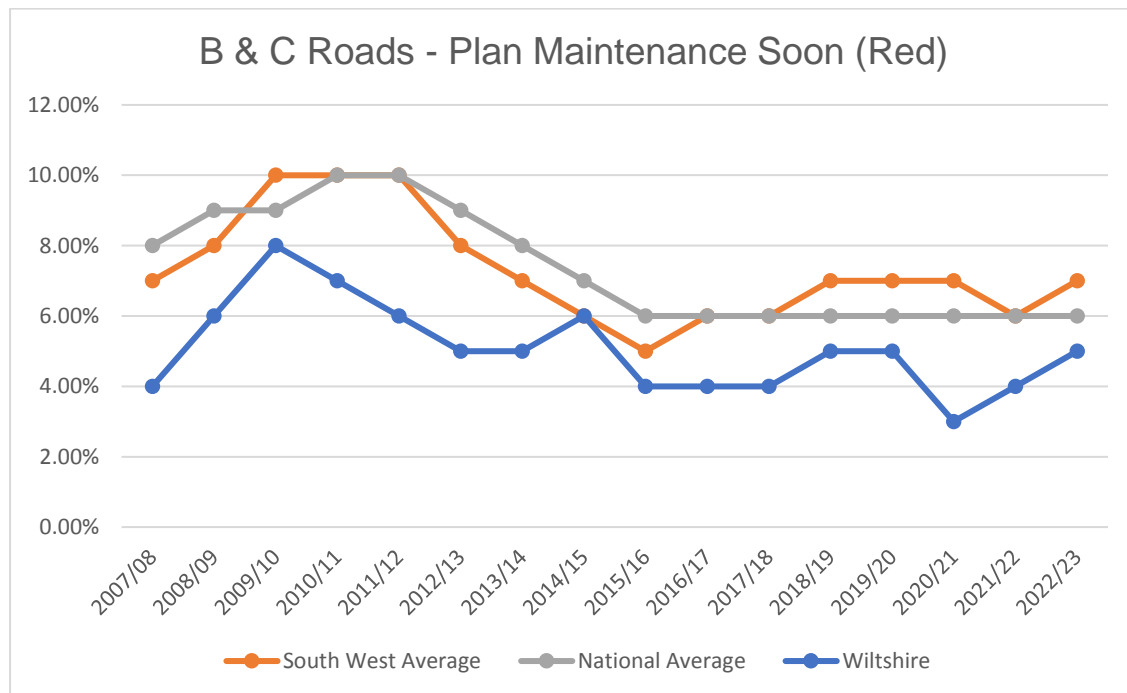


The percentage of A Class roads in Wiltshire currently rated Amber is now similar to the South West England average and is slightly better than the national average. The lower the percentage the better the overall condition of the roads.

The overall condition of the county’s A Class roads has been improving, and is now very similar to that of other highway authorities in the South West and is better than the National average.

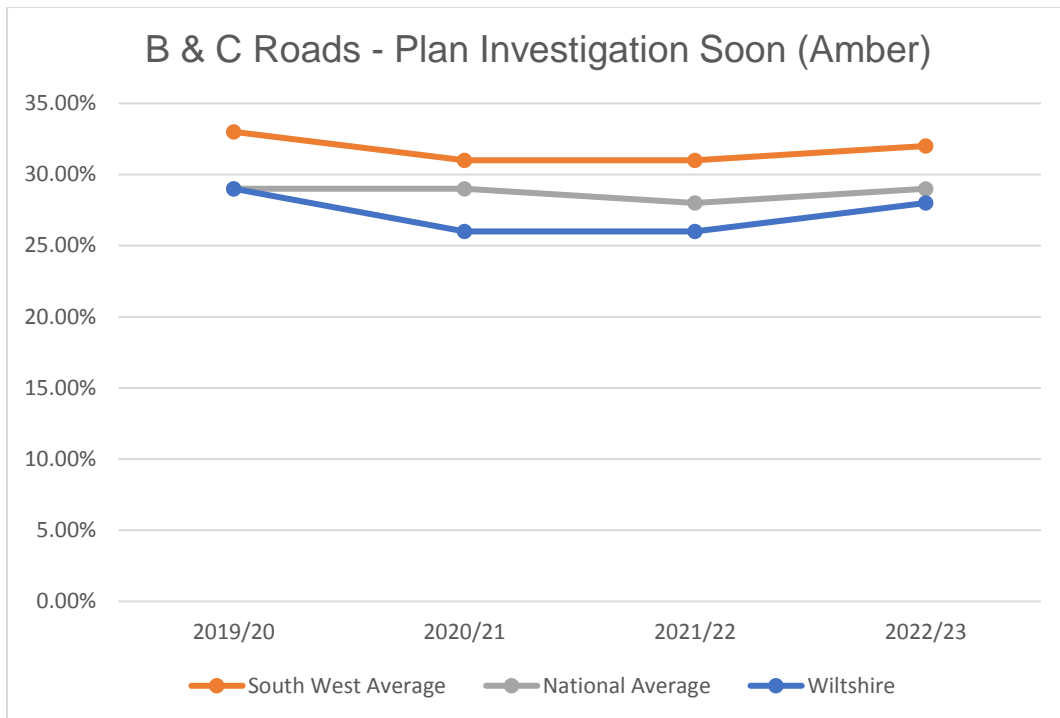
Condition of B and C Class Roads

The B and C Class roads represent a significant proportion of the county’s road network (44%) and are particularly important in view of the rural nature of most of the county. The DfT published data combines the B and C Class roads, and this has been used to compare the Wiltshire road conditions with other authorities. The lower the percentage the better the overall condition of the roads.



The condition of the B and C Class roads in Wiltshire has been better than the national average condition for many years. Their condition did deteriorate significantly between 2007/08 and 2009/10, but since then there has been a substantial improvement. The percentages of the B and C class roads in Wiltshire assessed as being in poor condition (Red) remain less than both the South West and national averages.

The DfT figures on the proportion of B and C Class roads for all highway authorities where maintenance should be investigated (Amber) have only been published since 2019/20. These indicate that in Wiltshire the proportion of B and C Class roads where maintenance should be investigated (Amber) is better than the South West and slightly better than the National averages. The lower the percentage the better the overall condition of the roads.

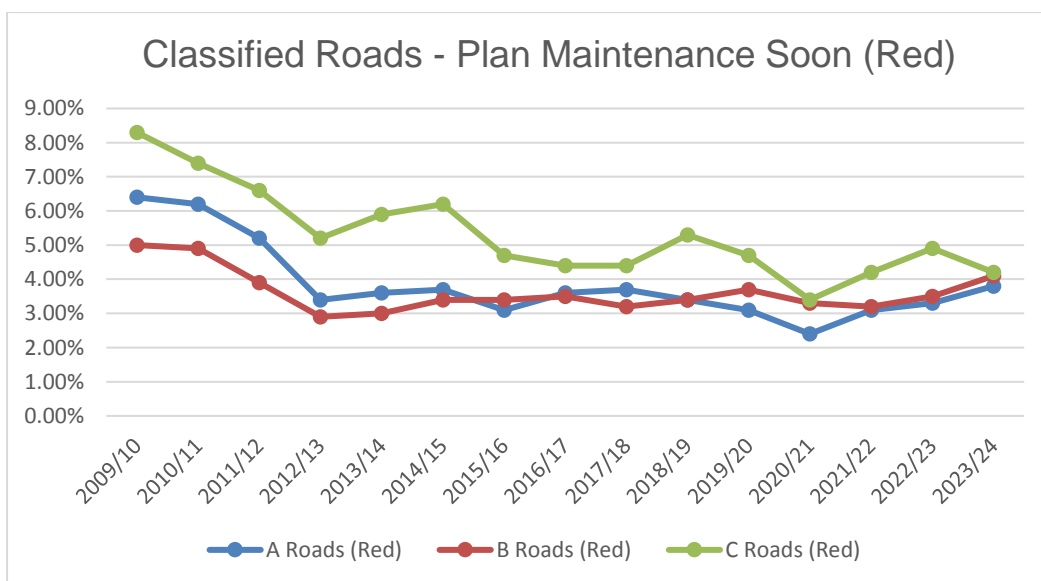


Whilst the overall condition of B and C Class roads compares favourably with those of other authorities, there has been a deterioration in recent years.

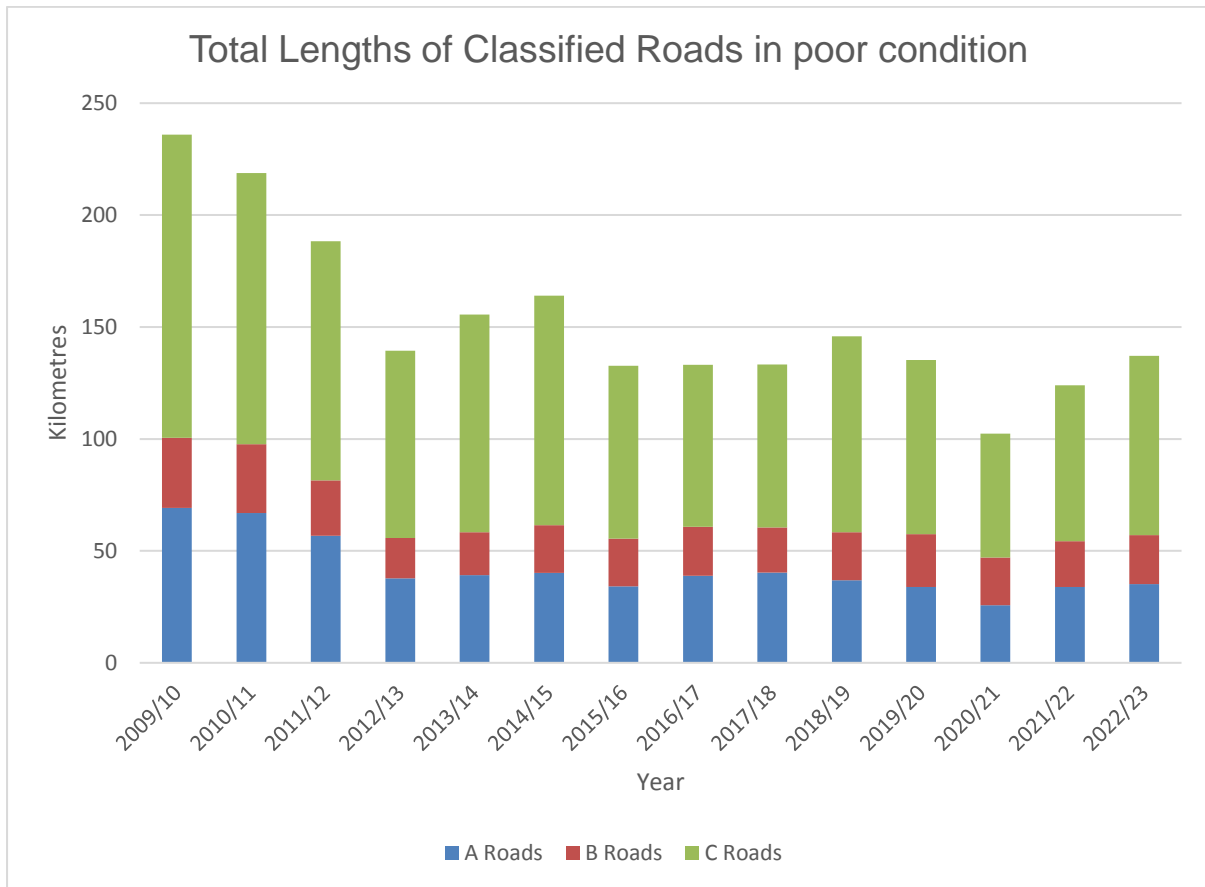
Overall Condition of classified Roads

The condition of Wiltshire’s classified roads is better than the national average and has improved considerably since 2009/10, however there is evidence of a decline in the last two years which needs to be addressed through a focussed maintenance programme. The unclassified roads are discussed later in the report as the assessment methodology for them is different.

The current overall condition of the A, B and C Class roads are very similar based on the percentages where maintenance should be planned soon (Red).



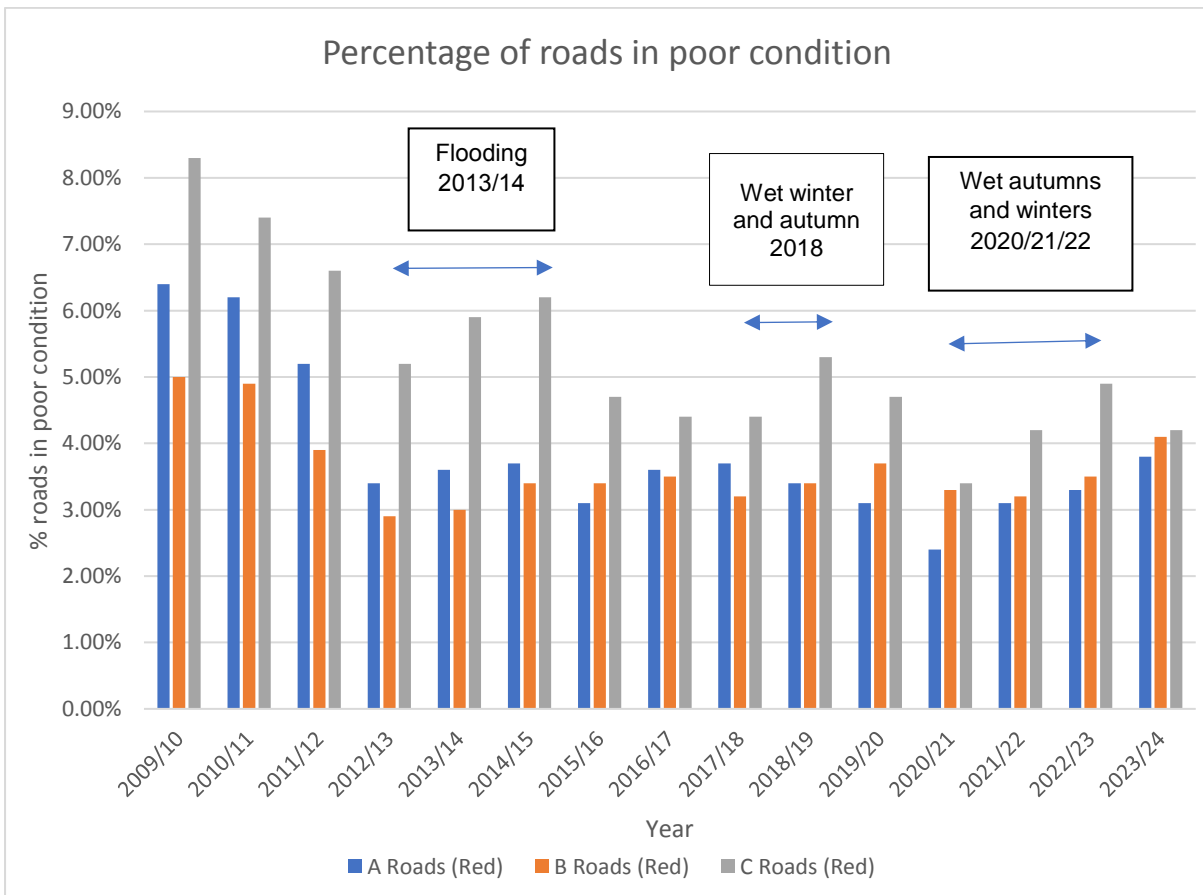
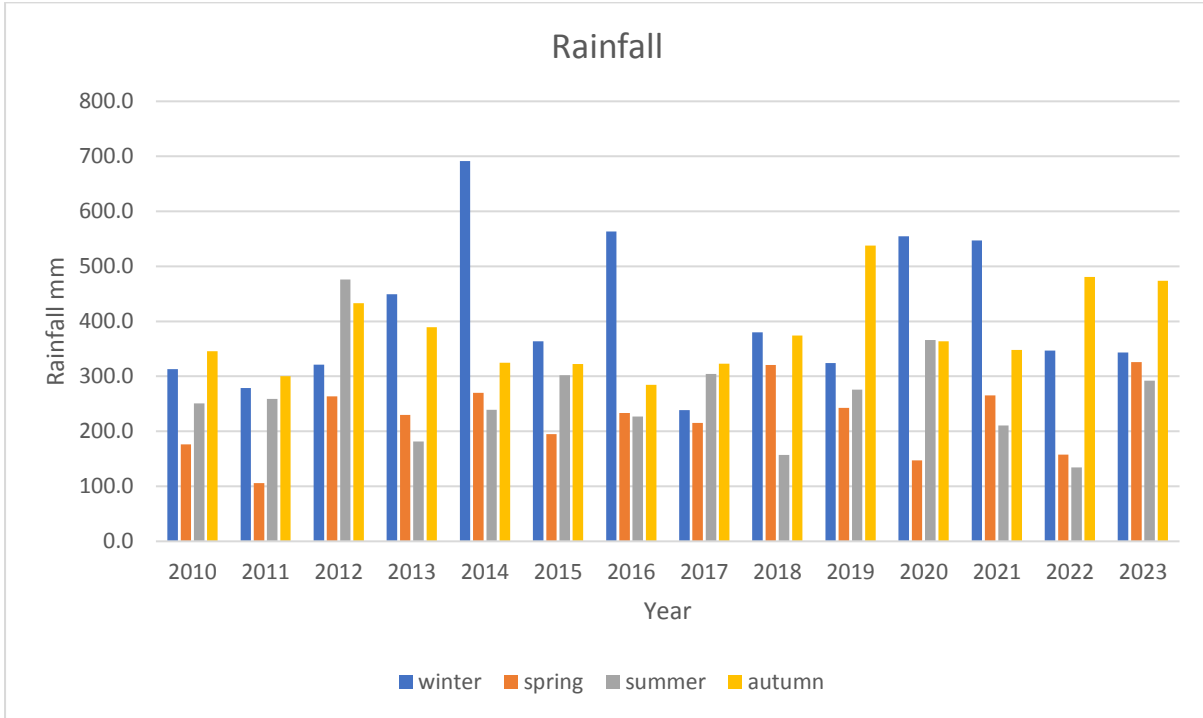
It should be noted that the long-term trend of classified road conditions improving has been reversed in recent years, mainly because of weather damage.



The recent extreme weather has caused significant damage to parts of the classified road network which will need investment in order to re-establish the previous trend of improving road conditions.

Rainfall and Road Conditions

The periods of high rainfall in recent years have had an adverse effect on the road conditions. There can be a slight lag between the damage occurring and it being identified by the surveys, but there is a clear correlation in many cases.



Following the serious flooding in 2013/14 all road types deteriorated in condition, but the C class roads were most affected. The graph clearly shows the percentages of road in bad condition increasing over the following two years, and then conditions improving as a programme of works was undertaken. The C class roads were also affected by the wet autumn and winter of 2018.

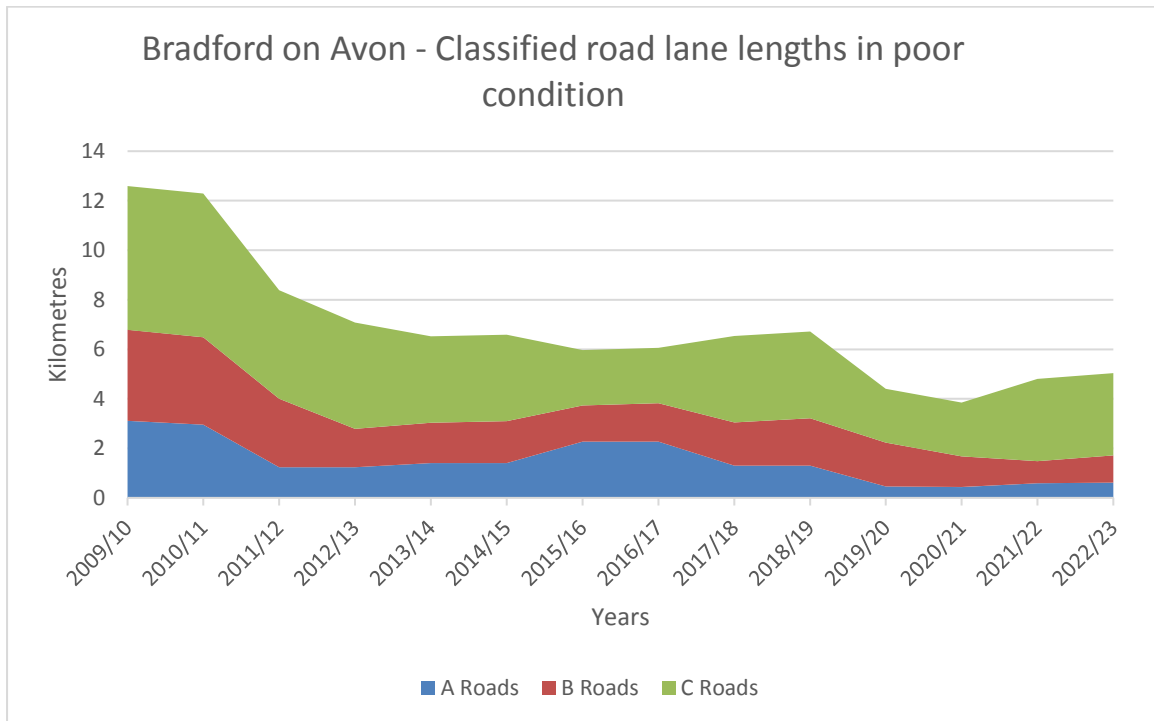
The wetter winters and autumns since 2020 have affected all road classes, with increases in the percentage of roads in poor condition, but again the C class roads have experienced more damage.

Most C class roads are evolved roads that have not been purpose built and are clearly more susceptible to damage in wet conditions. The A and B class roads carry more traffic but over the years they have been generally improved or strengthened.

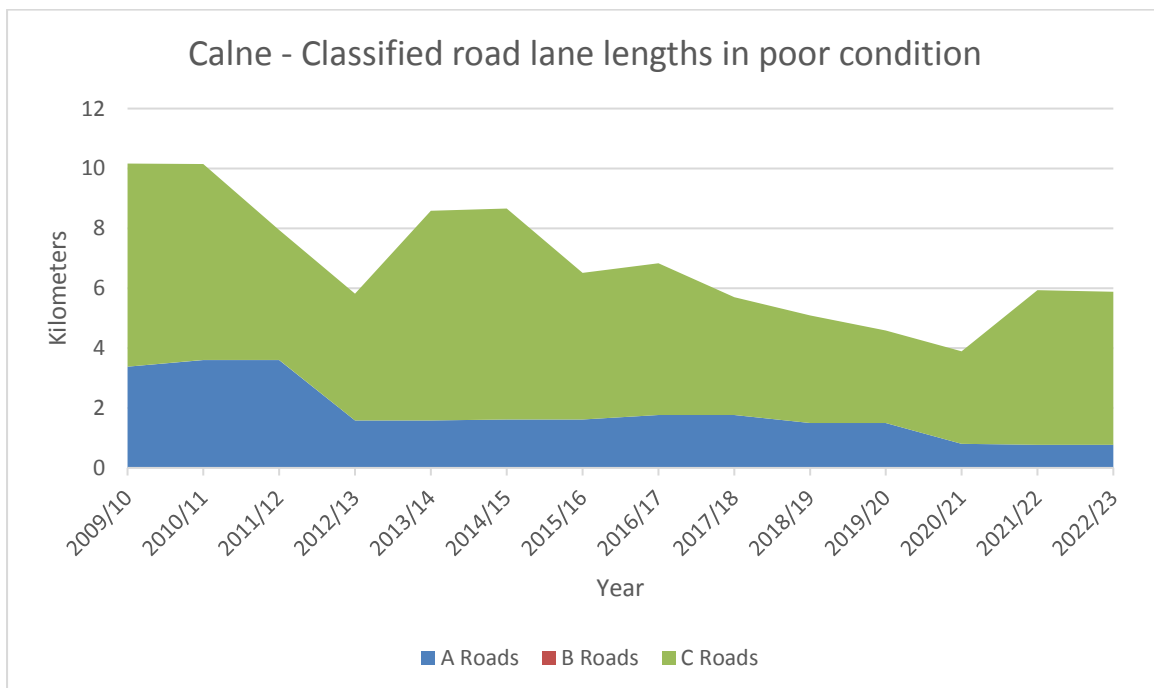
The unclassified roads are assessed using a different methodology and there is less historic data available. These are discussed later in the report.

Classified road conditions by area board

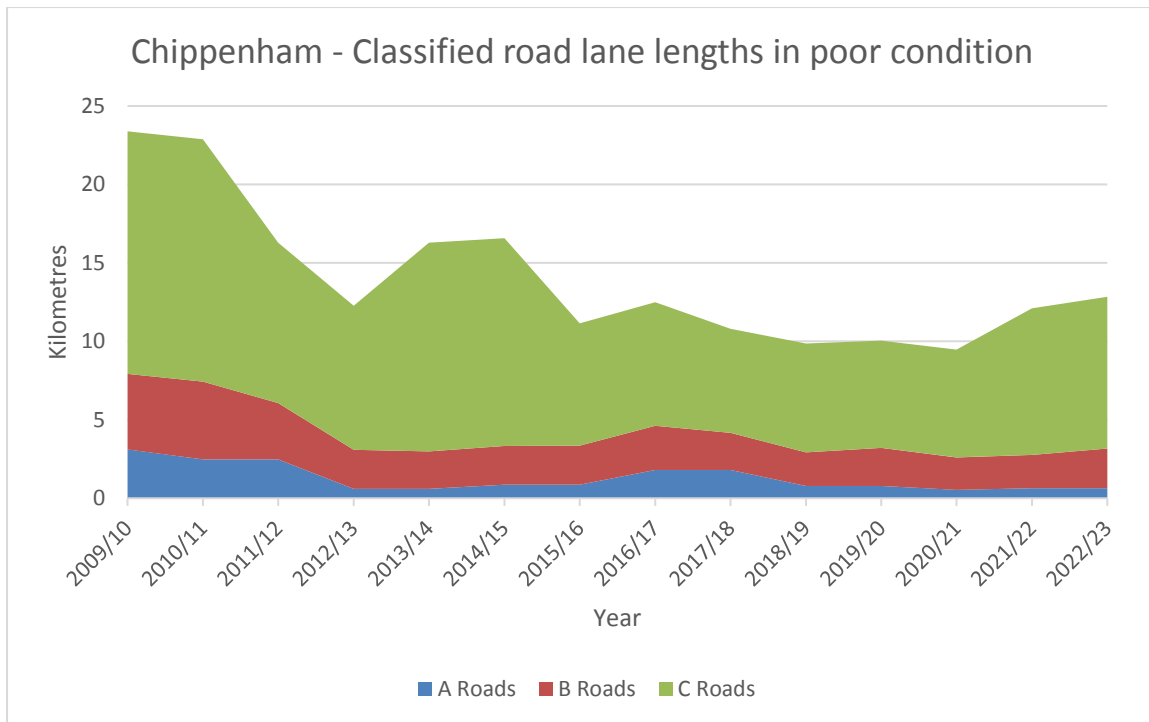
The classified road conditions are monitored for each Area Board, and the lengths of classified road in poor condition have generally been reducing since 2009/10.



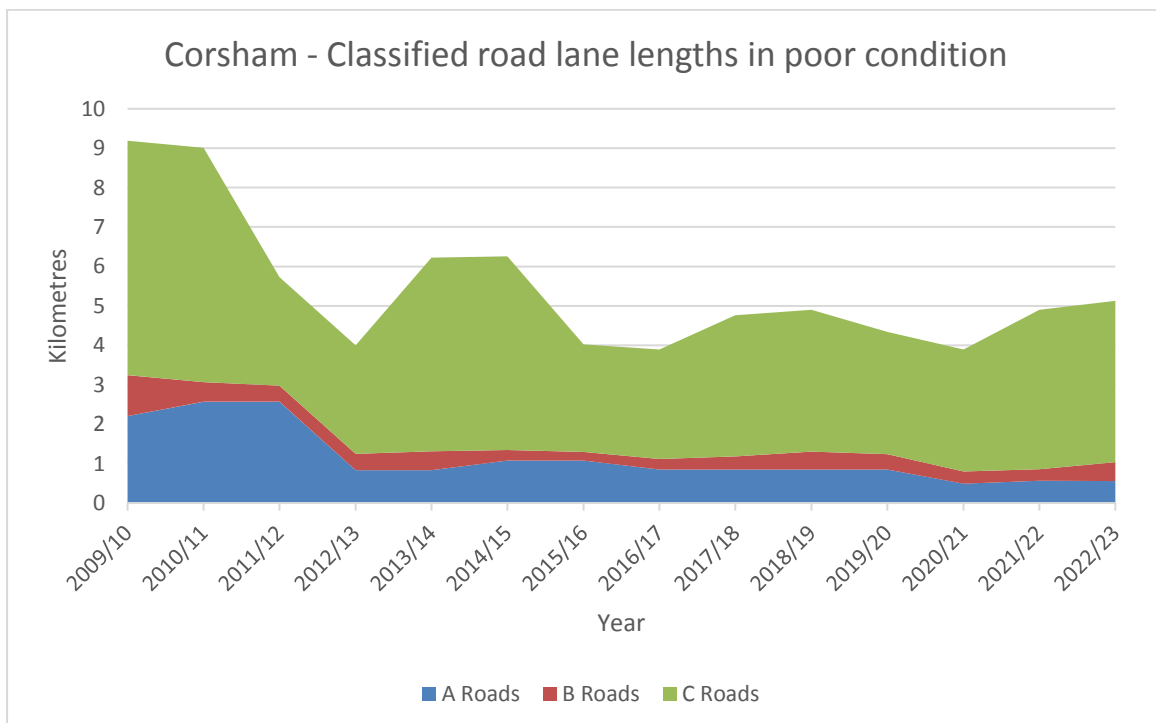
Road conditions have improved considerably in Bradford on Avon since 2009/10, but the C class roads have shown a deterioration since 2020/21, probably because of weather damage.



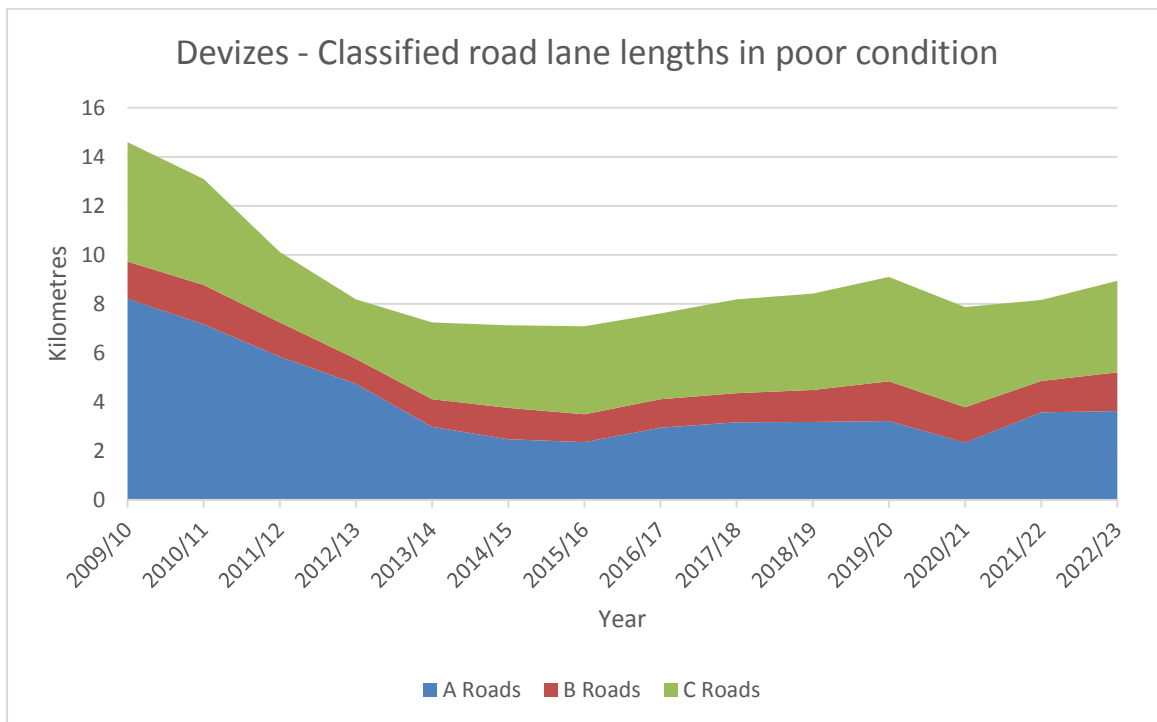
Road conditions in Calne have improved since 2009/10, but the C roads were badly affected by the flooding of 2013/14, and by extreme weather in more recent years.



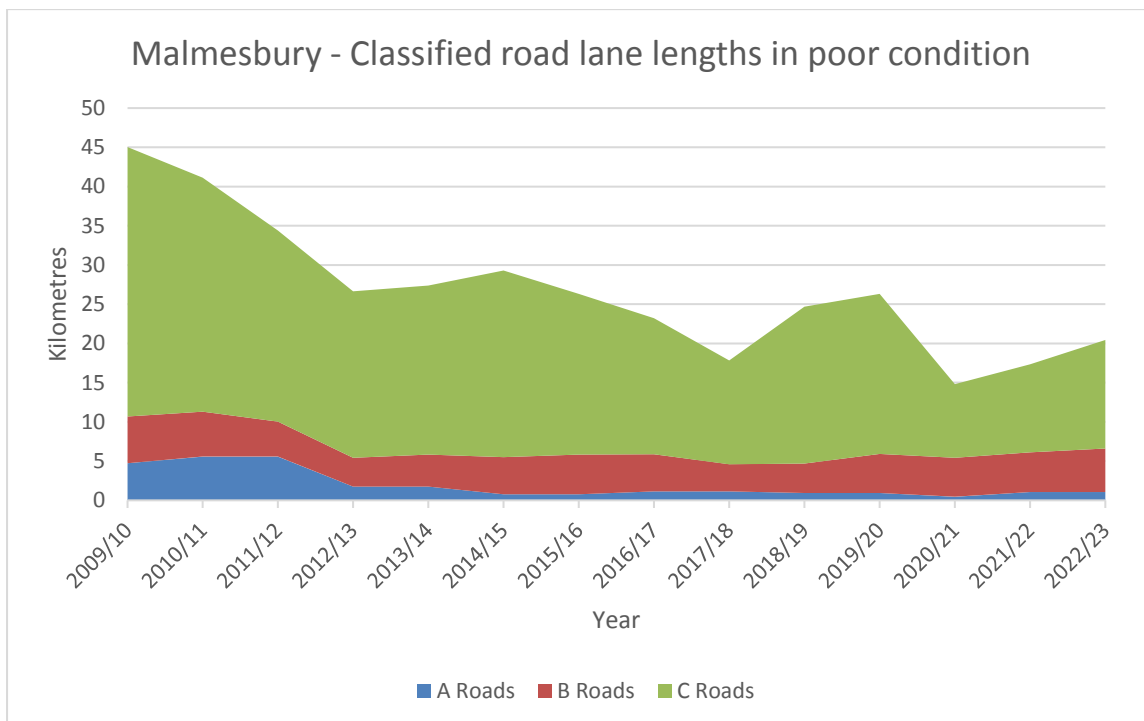
Road conditions in Chippenham have improved since 2009/10, but the C roads experienced damage in the flooding of 2013/14, and following the extreme weather in the last two years.



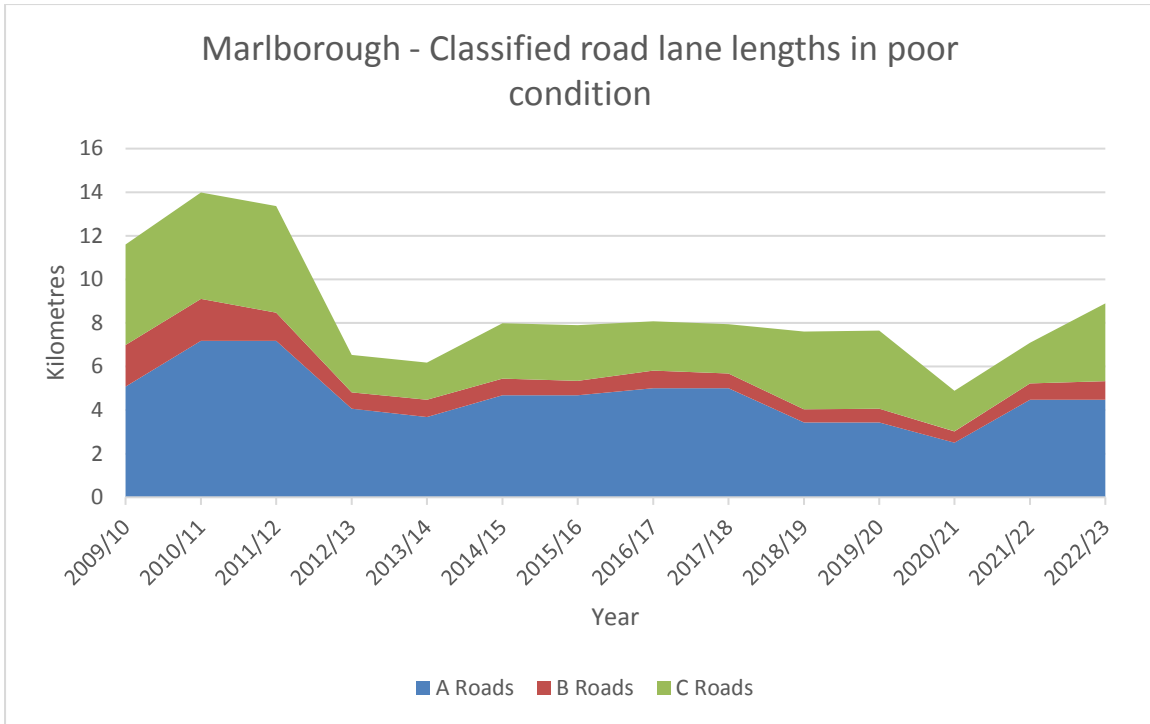
Road conditions in Corsham have improved considerably since 2009/10, but the C roads experienced damage in the flooding of 2013/14, and following the extreme weather in the last two years.



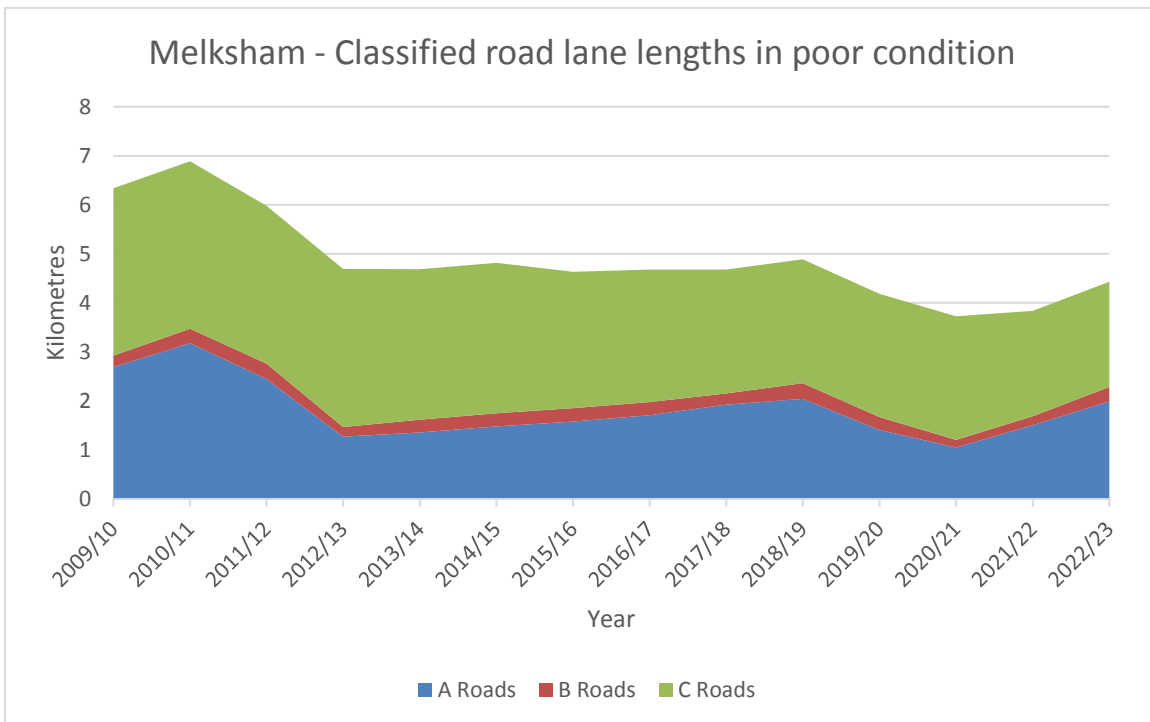
Road conditions in Devizes have improved since 2009/10, but there has been a deterioration in the A, B and C class roads since 2020/21.



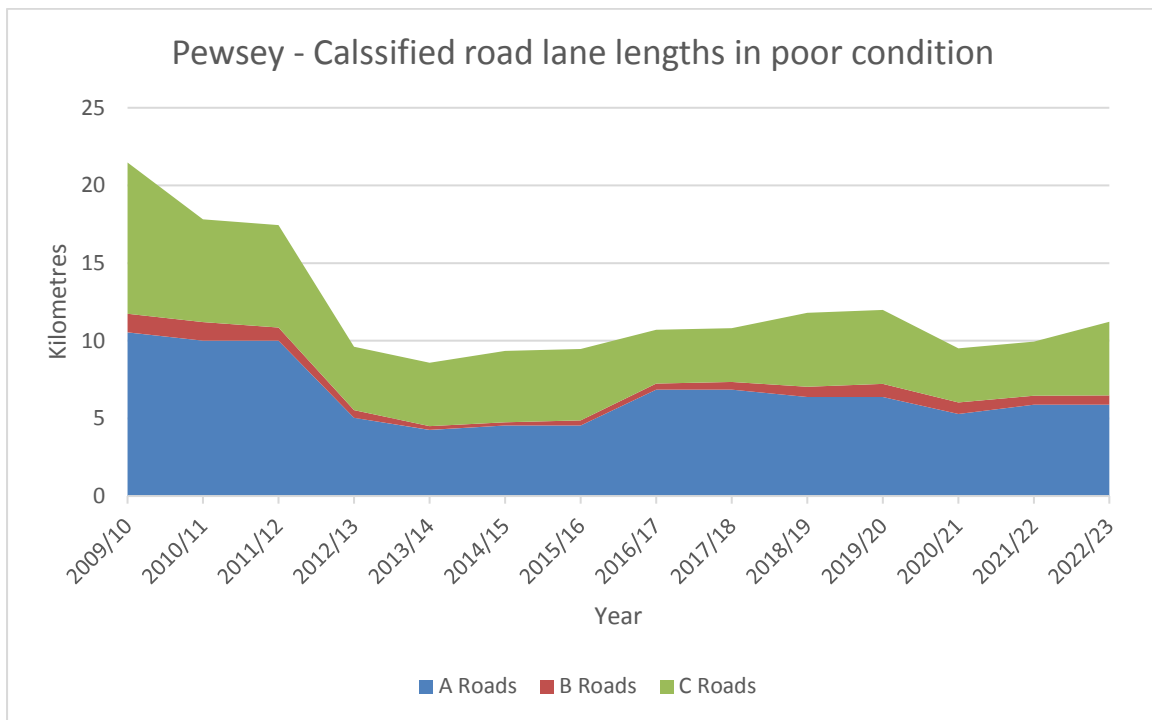
Road conditions in Malmesbury have improved since 2009/10, but the C roads have declined in condition since 2020/21.



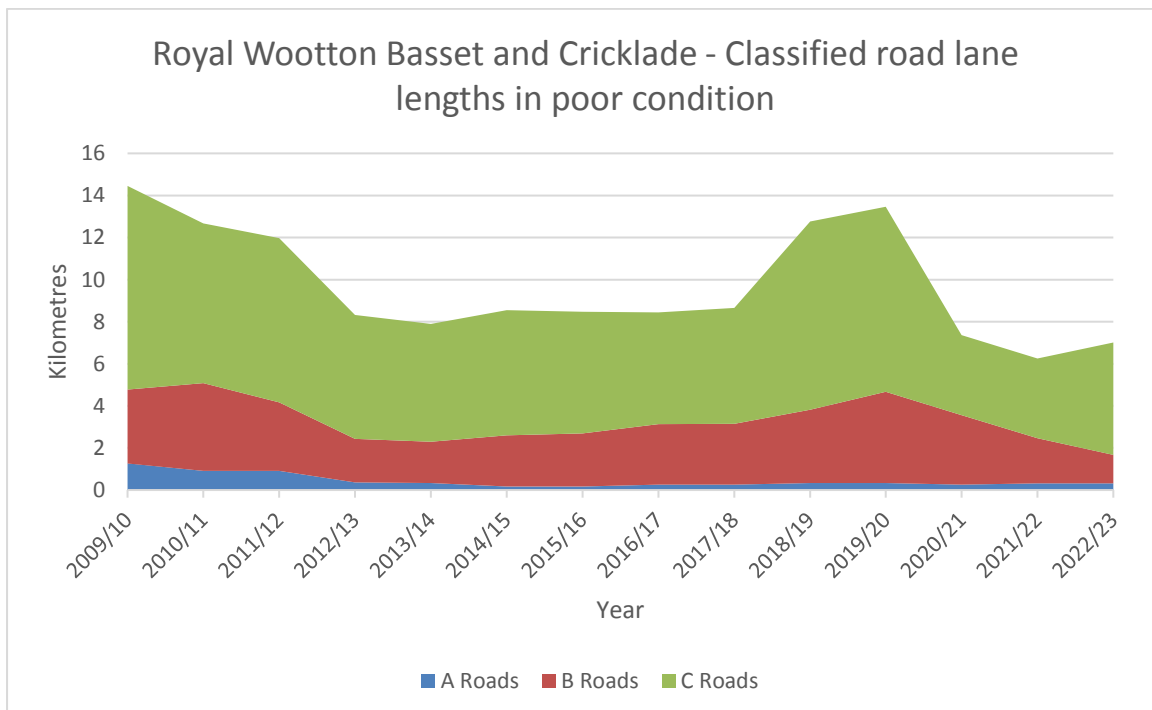
Road conditions in Marlborough have been fairly stable for some years, and improving slightly, but the A, B and C class roads have suffered weather damage since 2020/21.



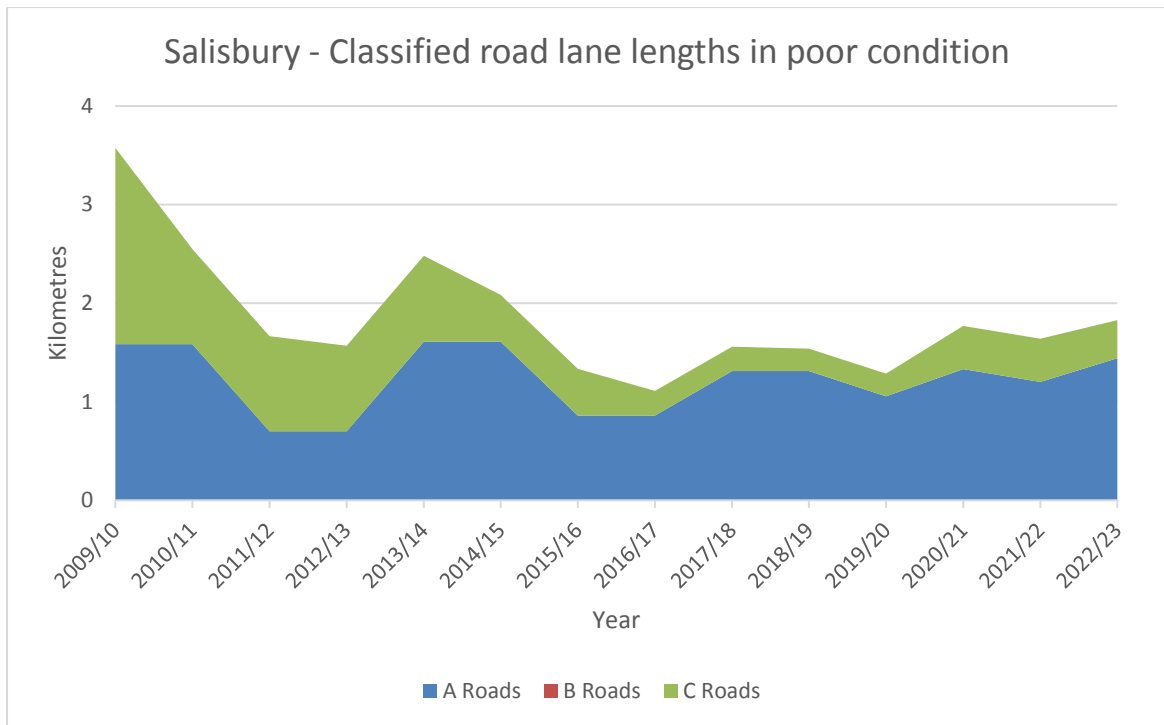
Road conditions in Melksham have been generally improving in recent years, but the extreme weather has caused damage with the condition of A, B and C class roads deteriorating since 2020/21.



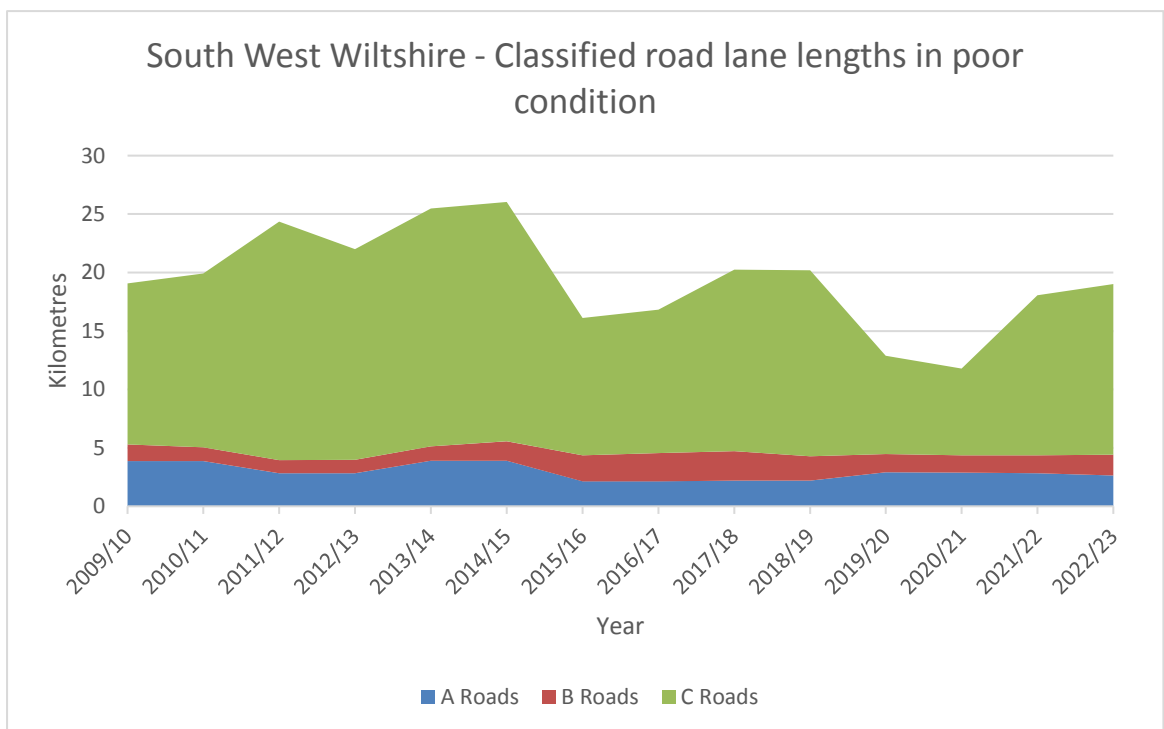
Road conditions in Pewsey have improved since 2009/10, but the extreme weather in the last two years has had an effect, especially on C class roads.



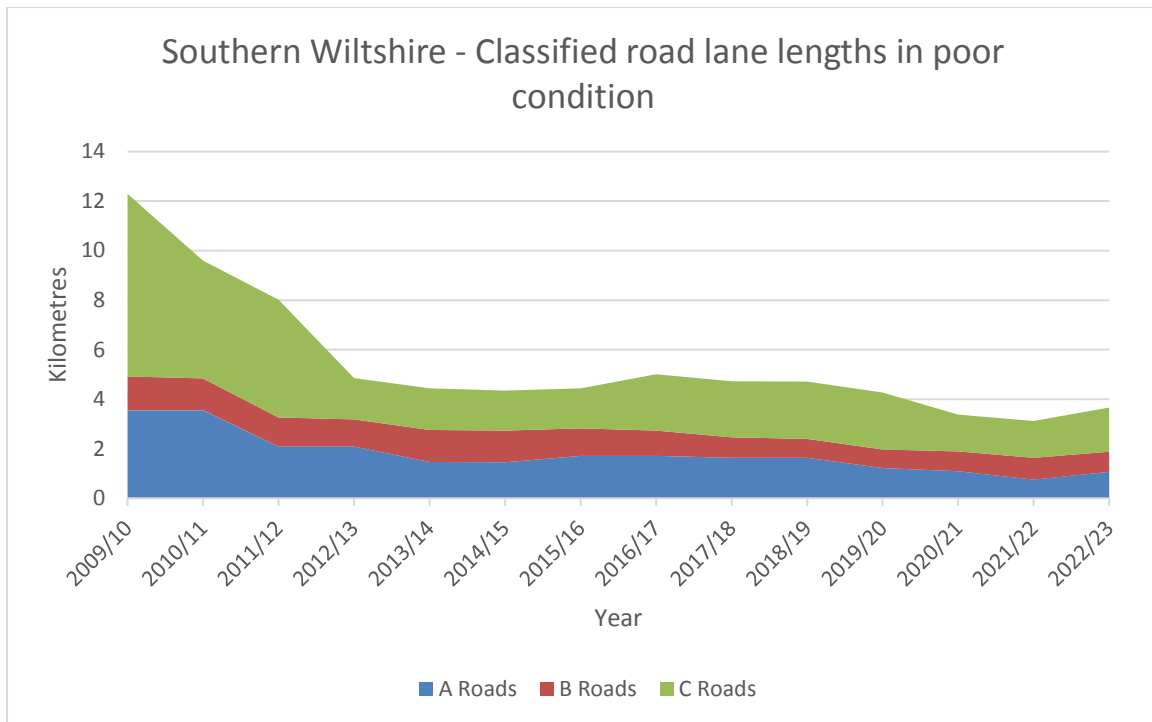
Road conditions in Royal Wootton Bassett and Cricklade have improved since 2009/10. The deterioration in B and C class roads between 2017/18 and 2019/20 has been largely addressed, but the C class roads are showing signs of recent damage.



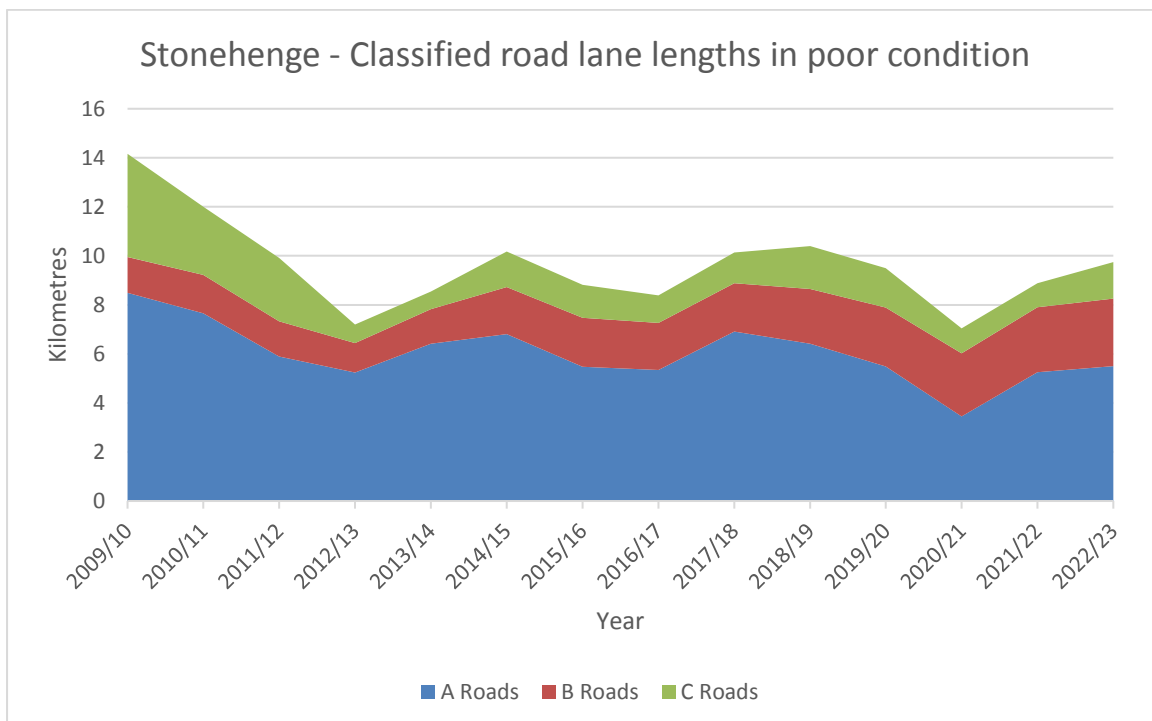
The condition of C class roads in Salisbury has improved considerably since 2009/10, but the A class roads have not seen a corresponding improvement.



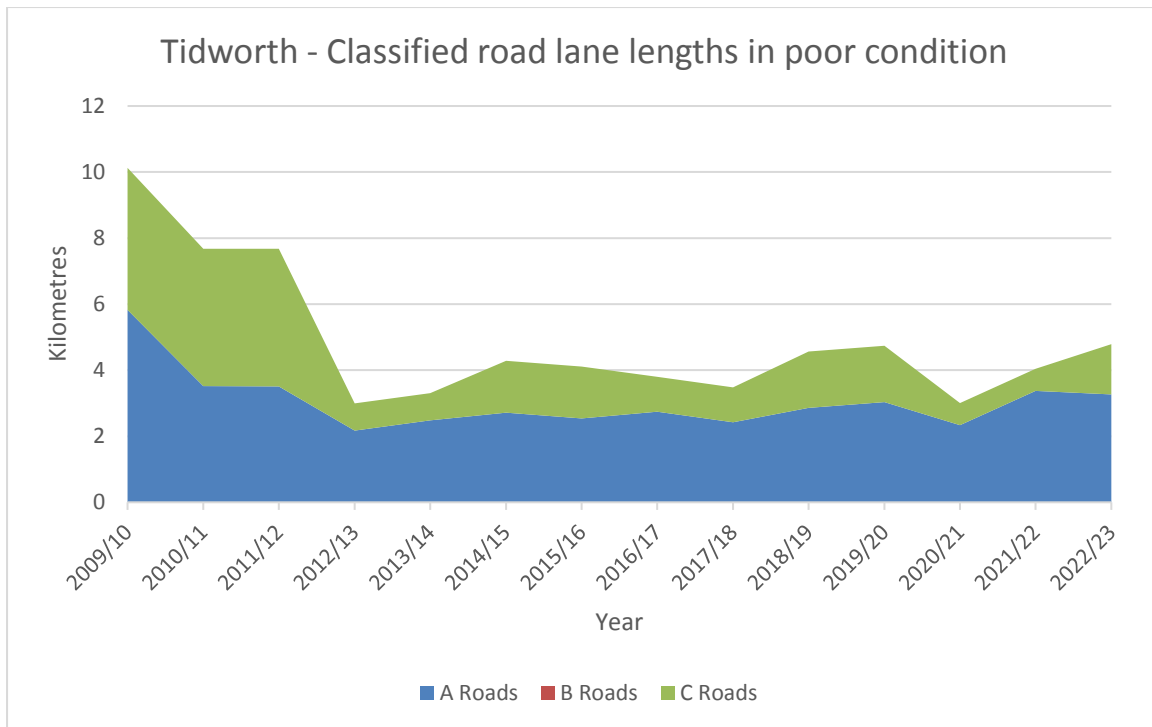
The condition of the C class roads in South West Wiltshire had been improving, but have experienced damage as a result of the recent weather.



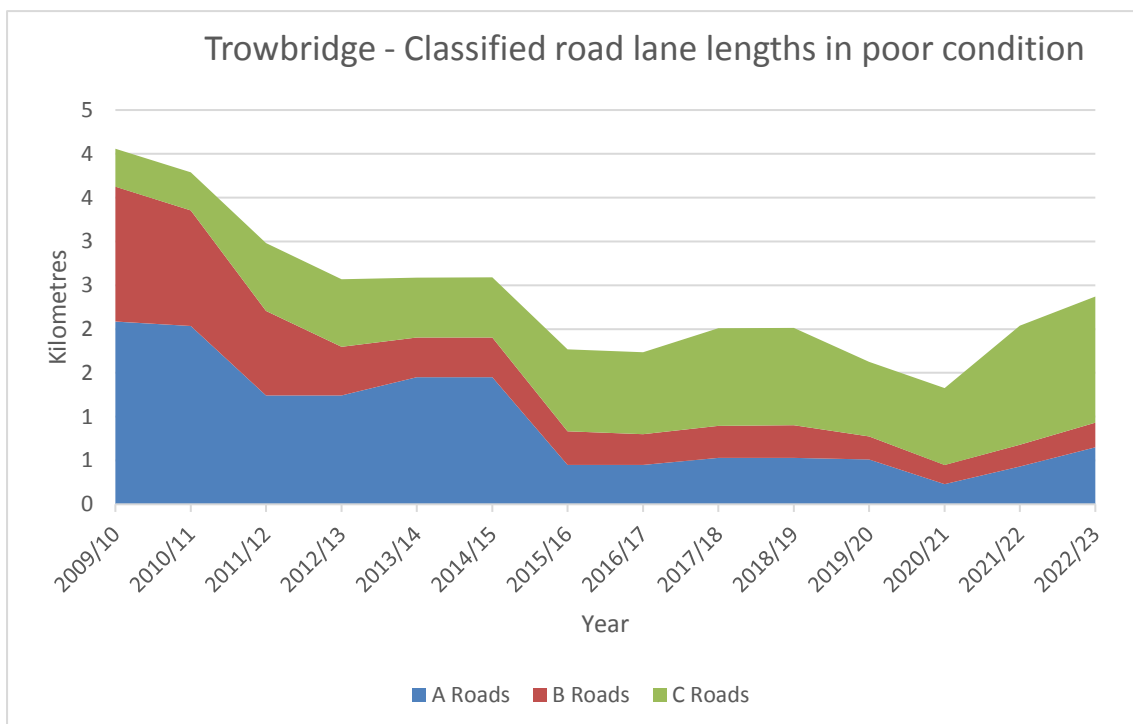
Road conditions in Southern Wiltshire have improved considerably since 2009/10 and have been in a fairly consistent condition for some years, but with a decline since 2021/22.



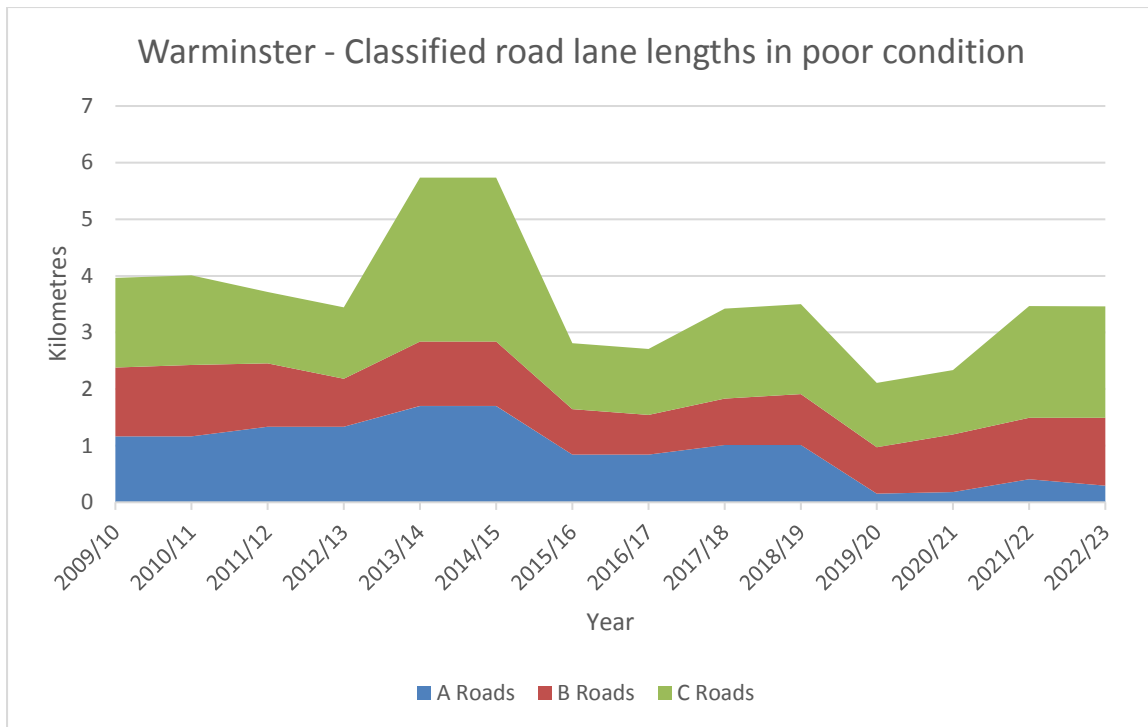
The conditions of the A and C class roads have improved in the Stonehenge area since 2009/10, but B class roads have not seen a corresponding improvement. The extreme weather has caused a deterioration in all classes of classified road since 2020/21.



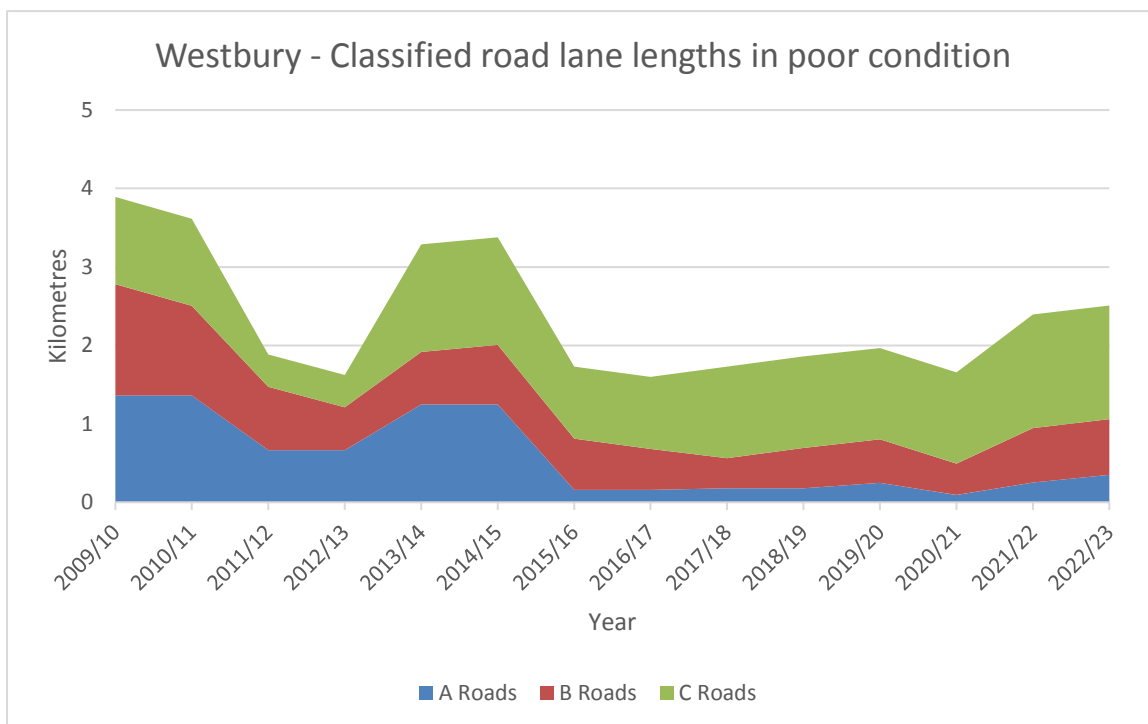
Road conditions in Tidworth area have improved considerably since 2009/10, but there has been a deterioration since 2020/21 with the extreme weather.



The condition of A and B class roads in Trowbridge has improved since 2009/10, but the condition of C class roads has not seen a corresponding improvement. There has been damage to all classes of road since 2020/21 following the extreme weather.



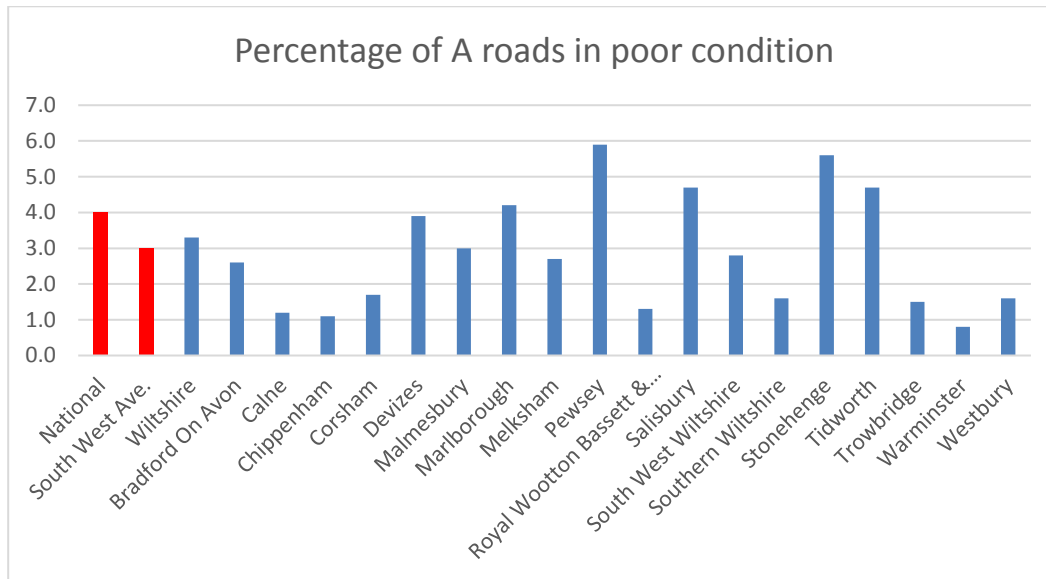
The road network in Warminster suffered damage following the flooding in 2013/14 and has suffered further damage following the more recent extreme weather.



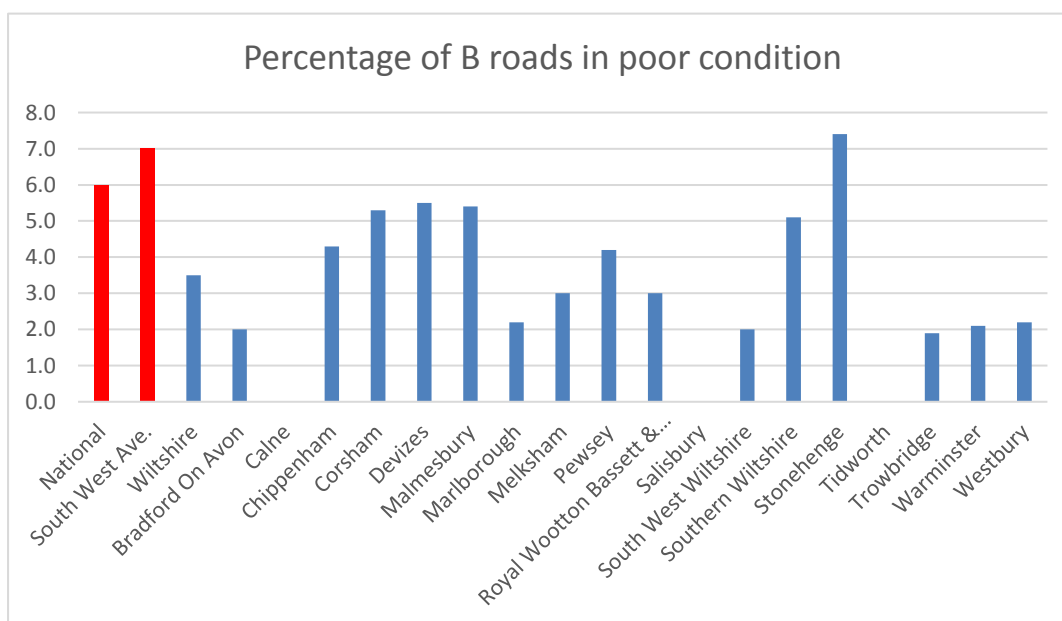
Road conditions in Westbury have improved since 2009/10, but they suffered considerable damage following the flooding in 2013/14 and there has been further damage following the recent extreme weather.

Comparison with national averages by area board

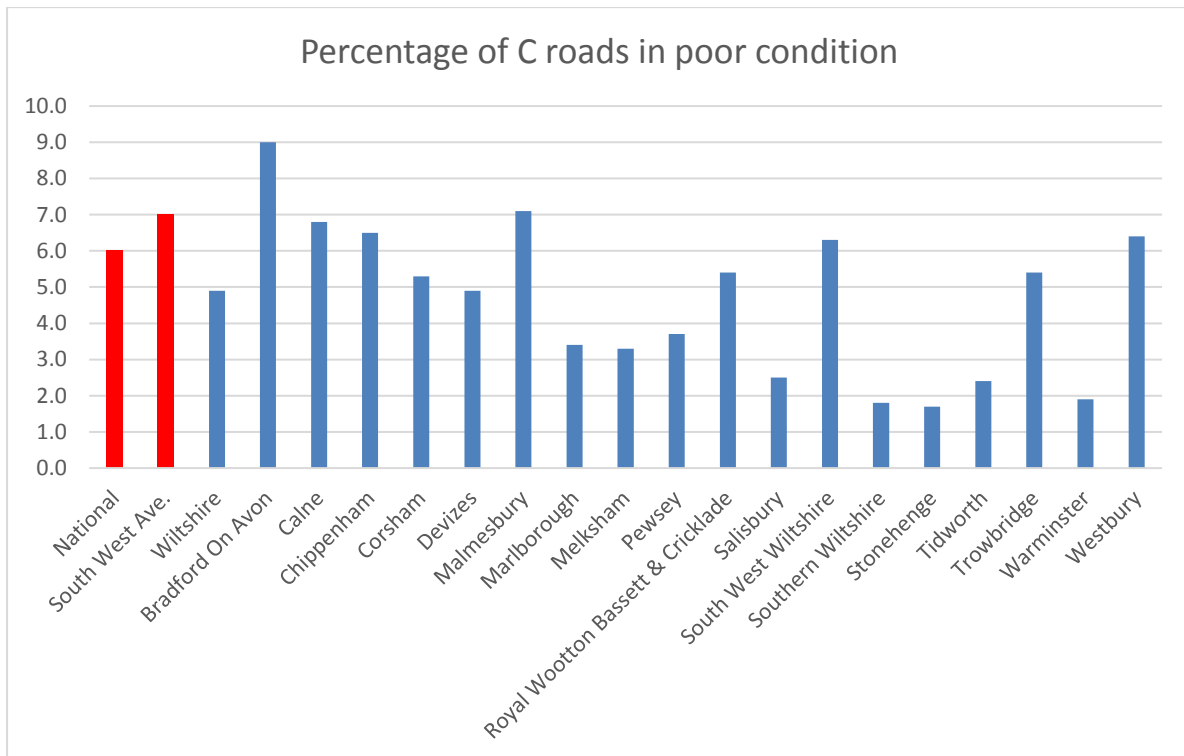
Despite the recent deterioration in condition of some of the A class roads, most still compare favourably to the national averages based on the latest published data. Pewsey, Salisbury, Stonehenge and Tidworth have some A roads in worse condition than the national average. Devizes and Marlborough are close to the national average, but the others have A road conditions better than the national averages, and in some cases significantly better. The lower the percentage the better the overall condition of the roads.



The percentages of B and C class roads are grouped together by the DfT for statistical purposes, so a direct comparison of the individual road classes is not possible. However, an indicative comparison can be made to identify significant variations.



The condition of B roads in the Stonehenge area board is worse than the national average. Corsham, Devizes, Malmesbury and Southern Wiltshire are slightly better than the national average, and the remainder of the area boards have B class roads in significantly better condition than the national average.



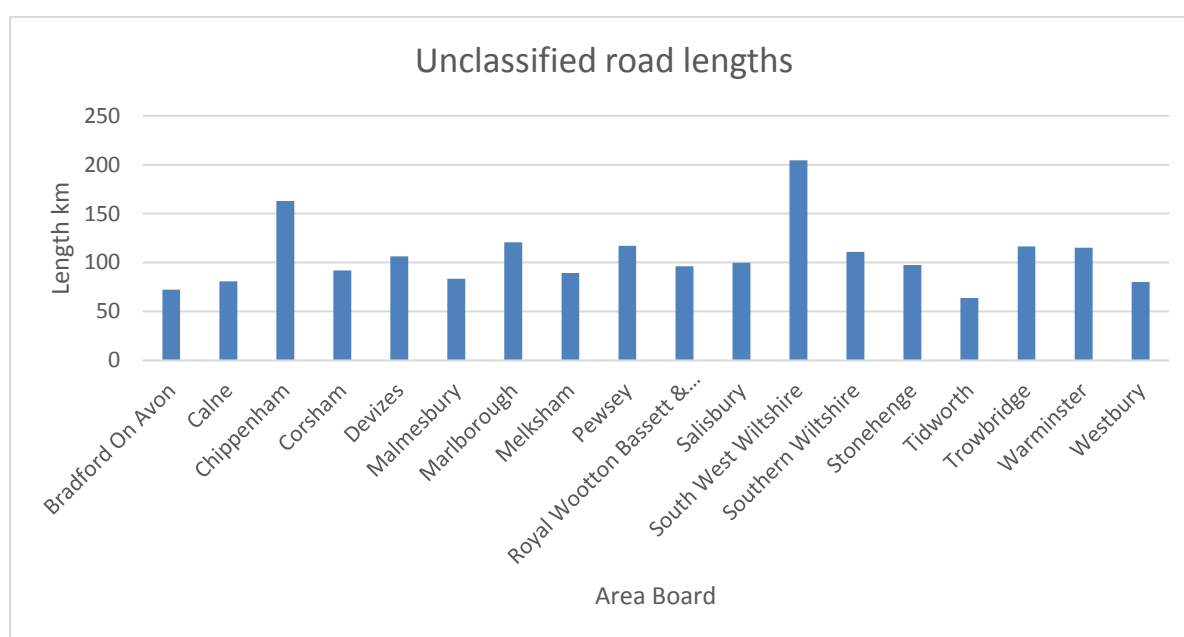
The condition of C class roads in Bradford on Avon and Malmesbury are worse than the national average condition. Those in Calne, Chippenham, South West Wiltshire and Westbury are slightly worse than the national average, but are generally better than the South West England average. In most area boards the C class roads are in better condition than the national average and appreciably better than the South West England average.

The C class roads had greater lengths affected by recent weather damage than other classified road types, but this was probably in part because they make up a larger proportion of the classified road network, and also because they generally have less robust construction than most A or B class roads.

Unclassified Road Conditions

Historically the condition of the unclassified roads in Wiltshire has compared favourably to those of other authorities based on the visual inspection methodology then used to assess and report on their condition. About ten years ago some highway authorities started using SCANNER and similar surveys on unclassified roads which give more consistent results but are usually not directly comparable with the results of the previous survey methods. The Department for Transport now no longer collects or publishes data for unclassified roads, and consequently it is not possible to directly compare data with that for other authorities.

The length of unclassified road in each Area Board varies considerably, with South West Wiltshire and Chippenham having significantly more than the others.



The conditions of the unclassified roads in Wiltshire are now monitored using SCANNER surveys. Not all roads are suitable for survey by the vehicles, but 863km of rural road lane length and 864km of urban road length are surveyed, which represents 82.1% of the unclassified road network. The assessment methodology used for grading the roads is slightly different for unclassified roads in order to reflect their different characteristics and requirements for that type of road.

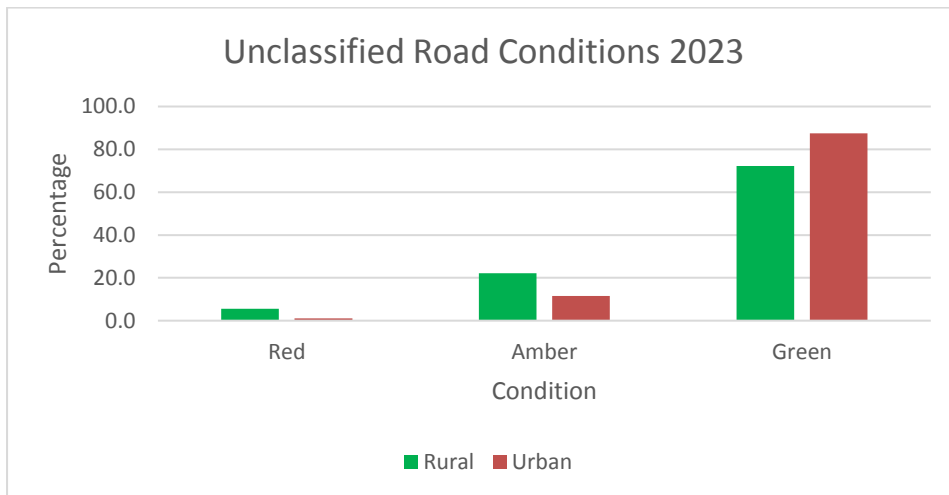
The 2023 survey results for the unclassified roads are:

Unclassified Road Condition	Percentage
Green – Generally good condition	80.6%
Amber – Plan investigation soon	16.3%
Red – Plan maintenance soon	3.1%

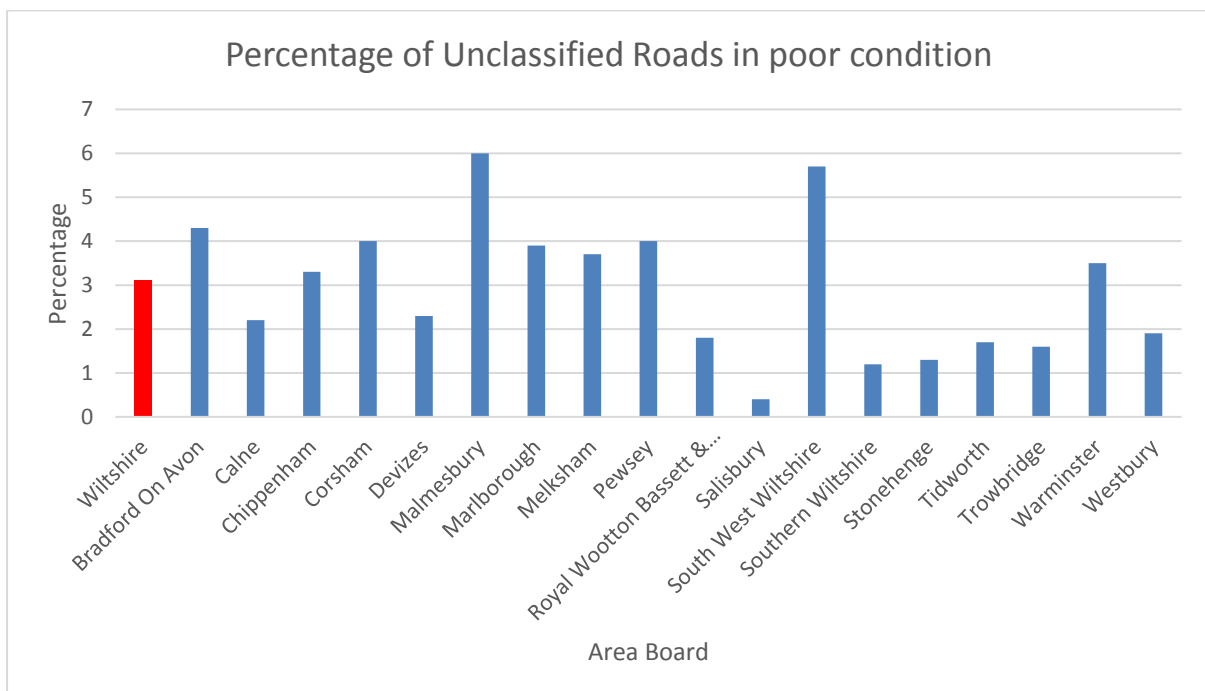
As with the classified roads, the majority of the unclassified roads are in good condition, but there are clearly some significant lengths in need of treatment, particularly in the rural areas, which are likely to have increased recently because of the extreme weather events and the vulnerability of these roads because of their limited construction.

The comparatively smaller percentage assessed as Amber (Plan investigation soon) is encouraging as it indicates that there is less of the network likely to decline into red condition in the immediate future than might have been the case.

The condition of the rural unclassified roads is generally worse than the urban ones. The urban roads are more likely to be housing estate roads or those in towns or villages which may have been purpose built. Many of the rural unclassified roads are lanes or tracks which have evolved over the years as they have been surfaced and may not have formal drainage systems or deep foundations.



The rural unclassified roads also have a higher proportion of roads assessed as Amber (Plan investigation soon) than the urban roads, indicating that their maintenance is likely to continue to be a challenge.



Malmesbury and South West Wiltshire areas have a significantly higher proportion of unclassified roads in poor condition, and Bradford on Avon, Corsham, Marlborough, Melksham, Pewsey, and Warminster also have proportions above the county average.

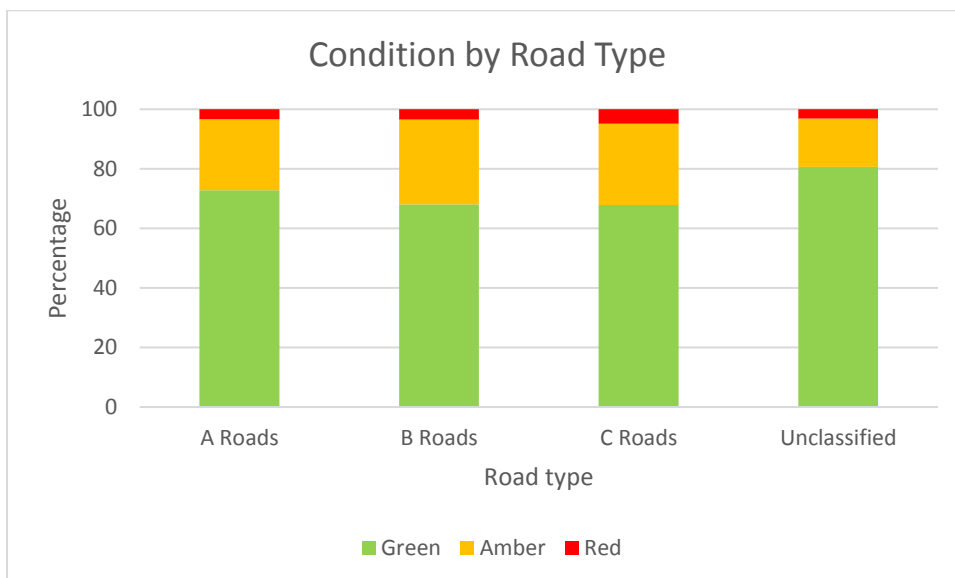


The recent extreme weather, especially extensive flooding, has resulted in considerable damage to the county's roads.

The roads in most areas appear to have been badly affected by the extreme weather in the last couple of years with the surveys identifying increased lengths of road in poor condition in most area boards and for most road types. This seems to have been a consistent issue across the county with all areas being affected to some extent.

Future Programmes of road maintenance

Although the unclassified roads assessments use a slightly different methodology, the indications are that in terms of percentages of road in poor condition the different road types have broadly similar issues.



When considering future programmes of resurfacing and maintenance for the roads, the different conditions across the network will need to be considered. The priorities should reflect the needs of all three of the classified road classes and the unclassified roads, and whilst they should focus on those areas with the worst conditions, an asset management approach in accordance with the adopted policy should continue to be taken to prevent roads declining into poor condition.

Skid Resistance Surveys

The surface condition of the carriageway is important for road safety, especially at the approach to junctions, at roundabouts and on bends. To identify sites for treatment robust assessments and surveys are carried out annually of the main roads, which includes all A and B Class roads and the more important C Class and Unclassified roads.



The skid resistance of roads is measured annually by specialist equipment, and areas for treatment or resurfacing are identified.

The Sideways Force Coefficient Routine Investigation Machine (SCRIM) is used to measure skid resistance. Each carriageway lane is investigated, and site categories and investigatory levels are assigned along the length of the network. The survey measures the sideways force of an angled wheel to determine a skid coefficient measured in accordance with DMRB publication HD28/15. Each section of the highway network is assigned a site category known as an investigatory level.

The Council surveys approximately 1,097km of road, which is 24% of the network. The data is assessed, considering information on personal injury collisions, skid resistance deficiency, speed environment and road hierarchy. The top scoring sites are then identified for further investigation, with about 200 being investigated each year.

The treatment where there is inadequate skid resistance is often to use captive shot blasting or water jetting to restore the texture. In some cases, providing warning signs may be sufficient, but where other defects such as rutting, cracking or potholes are present it may be appropriate to resurface the road.

There is currently no published information for other authorities' road skid resistance data, so a direct comparison is not possible. In Wiltshire about 17km to 43km of traffic lanes are treated each year, which represents about 79,000 sqm. to 200,000 sqm. The percentage of surveyed road below the investigatory level is calculated and compared to previous years. Although there have not been major changes in the proportion of road below investigatory level, a slight increase has been identified in recent years which needs to be addressed through planned maintenance.

The council considers road safety and skid resistance as a road maintenance priority. Carriageway resurfacing and surface treatments to improve skid resistance are included in the annual programme of works.

Road resurfacing programme

The detailed understanding of the condition of the road network informs the identification of priorities and enables cost effective treatments to be selected.

The Council has an extensive programme of work planned for 2024/25, including road resurfacing, reconstruction, surface treatment and surface dressing to maintain and improve the road surfaces depending on the requirements of each site. The selection of treatment is based on the technical information mainly collected through SCANNER and SCRIM surveys and is augmented by visual inspection and site visits by the engineers.

The choice of treatment depends on the road construction, traffic types and speed, and the extent of degradation or damage. In some cases, prompt preventative treatment such as surface dressing can extend the life of the road structure and avoid more costly substantial repairs.



The Council delivers an extensive programme of road surfacing and repair work throughout the year.

Where the underlying road has failed it can be necessary to reconstruct the various layers of carriageway construction. This is an expensive process and usually involves prolonged road closures. Timely intervention using surfacing or other processes can often prevent this level of deterioration.

Resurfacing is usually carried out when the road has reached the point where the surface course has either significantly degraded, or where structural failures are starting to occur, but the underlying layers of the road are still functioning adequately. These repairs are carried out by specialist contractors, usually under road closures over several days or nights.



Resurfacing, often with the existing damaged surface being removed, produces a durable surface and is used where the underlying construction is suitable.

The Council carries out extensive programmes of surface dressing (tar and chippings) on parts of the rural road network during the summer. This comparatively

inexpensive treatment prolongs the life of the road, improves skid resistance, and protects the structure of the road.



Surface dressing (sometimes known as 'tar and chippings') is a comparatively cheap treatment to restore skid resistance and seal the road surface, especially on rural roads.

Other processes such as microasphalt can be suitable for some minor roads, mainly in the towns and residential areas, where surface dressing would be less durable.

Where there is structural failure of the road construction, an option is to recycle the existing material by excavating it and mixing it with cement or other material to increase its strength. The road can then be surfaced with new material to seal the construction and provide skid resistance. This in-situ treatment can be effective on suitable sites, but it can be a noisy process and managing dust has been an issue.



In-situ recycling makes use of the existing road construction by excavating and mixing it with other material and treating it to increase its strength.

In heavily trafficked areas such as town centres and industrial estates, more durable surfacing treatments may be used, including grouted macadam. These more expensive surfacing materials can stand up to heavy traffic usage better than normal surfacing and can prove cost effective in the longer term.



In areas subject to heavy loading and stresses materials such as grouted asphalt can be used for a more durable surface.

Where road surfaces do not have adequate skid resistance, the surface can sometimes be retextured. This is usually required at the approaches to junctions,

roundabouts or on bends. The treatment by either captive shot blasting or water jetting is a quick, effective, and low-cost treatment.



Road retexturing can be a quick, effective and low-cost method of restoring skid resistance to roads.

Smaller areas of damaged road can be repaired by mobile gangs with smaller equipment which can remove the defective areas of the road surface and repair to extend the life of the road.



Localised repairs can be a comparatively quick way to extend the life of a road.

As well as considering the appropriate repair at each location it is also necessary to consider whether other highway assets such as drainage, verges, kerbs, or footways need treatment.



Verge, drainage repairs, and alterations to lane markings may be included in road maintenance schemes.

With a limited budget it is necessary to give careful consideration to the treatment and scope of the works. In some cases, potholes and other defects may need immediate treatment in advance of roads being included in the programmes for more substantial treatment when circumstances permit.

Network Coordination and Streetworks

As well as the work to maintain the highway network undertaken by the Council, public utilities have the right to excavate in the highway to place and maintain services such as water, gas, electricity, and telecommunications equipment. The highway authority coordinates this work to ensure it is carried out safely and to minimise disruption to road users, residents, and businesses.

Wiltshire Council became a Permit Authority on 1st June 2020 following guidance from the Department for Transport (DfT). The operation of the permit scheme is monitored and reported on annually. The indications are that it continues to provide a better understanding and visibility of the works that are taking place on the network and that the ability to analyse, challenge and apply conditions to permit applications continues to benefit all road users in Wiltshire, resulting in quantifiable improvements to the planning and delivery of work on our highway network.



The council coordinates work on the highway network, and supervises and inspects the work of contractors.

Effective management of the permit assessment process has been shown to be having a positive impact, with the duration of works on the network reducing year on year. The Network Management team will continue to work collaboratively with the council's highway maintenance teams to reduce delays and develop innovative temporary traffic management solutions, such as the use of one-way systems instead of disruptive traffic lights where possible, and to explore alternative construction techniques to minimise disruption on the network.

The council actively manages works on the network by holding regular update meetings with the promoters to ensure they are on programme and taking steps to rectify issues where they arise and ensure that there are effective consultations and information for road users, residents, and businesses. The coordination of works to reduce damage to road surfaces, and the protection of recently completed surfacing works, are important aspects of the Network Management team's role.

Where works by public utilities take place on the network, a robust inspection regime for works and reinstatements is followed in accordance with the Regulations. In 2023 approximately 5,700 inspections were undertaken. The number of inspections for those utilities that perform well are reduced but are increased for those that have poor performance. The council's inspection regime is known for being robust and this approach drives compliance and improved performance by those doing works on the road network in Wiltshire.

The coordination of works and inspections continues to help protect the highway assets from unnecessary damage.

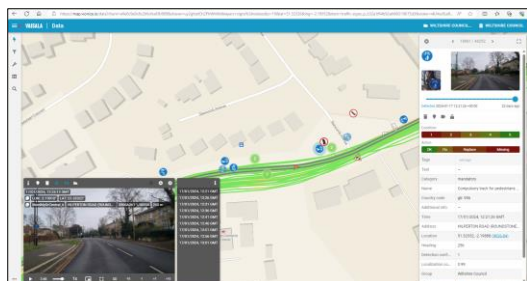
Innovation

Wiltshire Council continues to develop its Highways Infrastructure Asset Management System (HIAMS). The software is currently used to record inspections of street works, manage highway works orders and budgets, programme and record pothole repairs in the field and analyse condition survey datasets to produce prioritised sites for resurfacing.



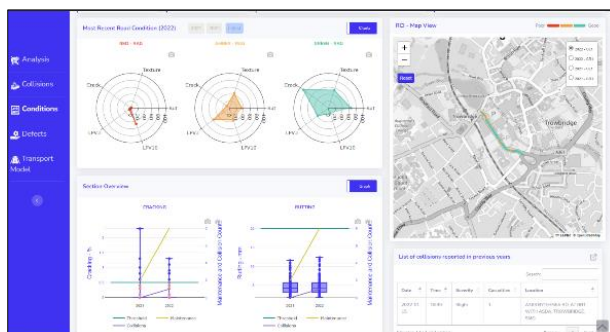
HIAMS allow technical data, including surveys by vehicle mounted lasers, to be used to assess road conditions to prioritise sites for treatment. Road safety is the priority, and maintaining adequate skid resistance on the busy high-speed roads is vital.

Wiltshire Council is utilising Vaisala's Road AI technology on highway safety inspections. The technology uses smart phones in Council inspection vehicles to collect video data which is then analysed by Vaisala's Road AI technology to provide detailed outputs on road condition. It can accurately map and maintain a comprehensive road sign and lines asset register, informing Council staff if anything in the asset register is no longer there, such as a road sign that has been knocked over since the previous inspection.



Vaisala's web platform allows all data collected, including videos, to be viewed and scrutinised by engineers.

Wiltshire Council has been working collaboratively with its highways consultant, AtkinsRealis, to develop the Insights Engine which is a map-based platform that combines multiple datasets such as machine condition data, pothole and defect data, road collision data and traffic model data, enabling Highway Engineers to understand what is happening on the network and how the roads are performing.



Technology is being used to obtain a better understanding of the highway assets and their condition.

A second phase of development is taking place this year to develop a road deterioration model that uses historical condition data to help predict future rates of deterioration across the road network. This will provide Highway Engineers with the tools to understand when the most appropriate time is to intervene with treatments to prolong the life of the asset. Engineers will also be able to run multiyear budget scenarios to understand the impact of various spending levels on the present and future condition of Wiltshire's roads.



Specialist equipment is being introduced to help manage the highway trees, which are becoming an increasing problem because of ash die back.

Improved technology to manage workflows has been introduced by the council's tree contractor, Upton Specialist Tree Services Ltd, and specialist plant and equipment has been used to speed up operations for maintaining and managing the council's highway trees, which have become a particular concern because of the increase in ash die back on the network.

The Council has been working with its delivery partners to trial new materials, and Keily Bros Ltd have introduced KeilyLock in the county. This is a road surface treatment used in conjunction with the traditional surface dressing process. The primary function of the treatment is to 'lock' the chippings into the road surface, which stops the ingress of water and resultant damage to the treated road surface. The visual appearance of a site is like that of a traditional 'black top' site and is more aesthetically pleasing than normal surface dressing. The application of KeilyLock is swift, minimising road closure durations and road markings can be applied one hour after completion of the process.

Tarmac Ltd have introduced Utilayer SAMI (Stress Absorbing Membrane Interlayer), which was used in recent surfacing in Westbury. Its shorter curing period allowed the road to be reopened and trafficked quicker than a traditional Geogrid membrane which would have required a 24-hour curing period. It is a fine graded asphalt containing a high proportion of premium Polymer Modified Binder which is typically laid 25mm thick and is designed to offer exceptional flexibility, and to have fatigue resistance properties over 200 times better than conventional asphalt.

The Council is also working with its term maintenance contractor, Milestone Infrastructure, to trial pothole repair processes to identify methods of dealing more efficiently with the repair of potholes and defects on the network.

A Bobcat and planer are being used for undertaking small areas of patching at locations where a more robust repair is required than can be provided by the Pothole Gang or the Hand Patching Gang. This operation involves the use of a mini planer to remove layers of defective surfacing material down to a more stable layer, and

backfilling with a hot surfacing material. The result is a neater longer lasting patch that will not require revisiting for some time.

A hotbox has been provided at Melksham depot to allow the storage of hot surfacing materials that can be accessed by the patching gangs for use on site. The hot material enables a more robust repair where required.

Milestone have also shared with Wiltshire the results of recent trials that they have been undertaking on the use of various commercially available patching operations. This information will help the Council to consider potential additional patching resources for various types of locations and repairs.

Milestone are currently undertaking a full inventory update of the Council's highway gullies, locating their positions using GPS. This information is being used to update and ensure the accuracy of the Council's gully inventory and will ensure all gullies are programmed and any cleansing action can be recorded electronically against the gully.

Highway Maintenance 2022/23

A review of the 2022/23 road maintenance programme has been undertaken. The extensive programme used treatments which were selected based on need as identified from the condition surveys and inspections and were spread across all road types. The works expenditure by road type excluding overhead, staff costs, design, and supervision costs was:

Road Class	Total	Percentage
A	£3,812,099.94	30.12%
B	£1,273,751.52	10.07%
C	£4,372,006.55	34.55%
UC	£3,197,085.34	25.26%
Total	£12,654,943.35	100.00%

The largest proportion of expenditure was on the C Class roads, but there was also significant expenditure on the A Class roads, which carry the most traffic, and on the Unclassified roads. Almost 60% of the surfacing works expenditure in 2022/23 was on the C Class and Unclassified roads, which make up the largest proportion of the road network.

The road surfacing expenditure per kilometre of road type usually varies from year to year depending on the treatment needed. For 2022/23 the figures were:

Road Class	Total	Length (km)	Cost per km
A	£3,812,099.94	557	£6,843.99
B	£1,273,751.52	321	£3,968.07
C	£4,372,006.55	1,669	£2,619.54
UC	£3,197,085.34	2,007	£1,592.97

Maintenance expenditure per kilometre was highest for the A Class roads, which was probably because they carry the most traffic and often need more substantial reconstruction work due to the damage caused by the large numbers of heavy goods vehicles using them.

The C Class and Unclassified roads can usually be maintained using the less expensive surfacing materials such as surface dressing or micro asphalt, with only the occasional need for more substantial works.

The lengths of road treated are reported to DfT for Principal (A Class Roads) and non-principal roads (B, C and Unclassified roads) using the following treatment definitions:

- Strengthening – Reconstruction, in-situ recycling
- Resurfacing – Overlay, thin surfacing, resurfacing
- Preservation – Surface dressing, micro surfacing, preservation, and rejuvenation

The Wiltshire totals for the different types of treatment as percentages of the respective networks for 2022/23 were:

Road Class	Strengthening	Resurfacing	Preservation	Total
A Roads	0.0%	1.0%	4.2%	5.2%
B, C and UC	0.0%	0.3%	2.3%	2.6%

The percentages of their networks treated vary considerably between authorities because of local variations in conditions. The totals treated in Wiltshire in 2022/23 compared to the national averages (excluding London) were:

Road Class	Wiltshire	National Ave.
A Roads	5.2%	5.3%
B, C and UC	2.6%	2.4%

The percentages of road treated by road class in Wiltshire were very similar to the national averages in 2022/23.

Highway Maintenance 2023/24

In 2023/24 a similar programme of road maintenance is being undertaken to that delivered in 2022/23. As this is still in progress at the time of writing, final expenditure and full information on work completed is not yet available. Therefore, it has not been possible to carry out a detailed analysis at this stage, especially as extensive pothole repair work continues in response to recent flood damage.

The carriageway treatments selected for implementation in 2023/24 were based on need as identified from the condition surveys and inspections and involved all road types. The total highway maintenance capital budget for 2023/24 was similar to 2022/23 and the budget allocation by surfacing type was broadly similar.

The numbers of pothole and defect reports in 2023/24 was high with ongoing damage caused by flooding as well as resulting from extremes of temperature. Funding for pothole repairs was increased in the budget for the year to address the continuing demand for pothole repairs.

Additional Council funding was provided in 2023/24 for service areas where extra demand had been identified:

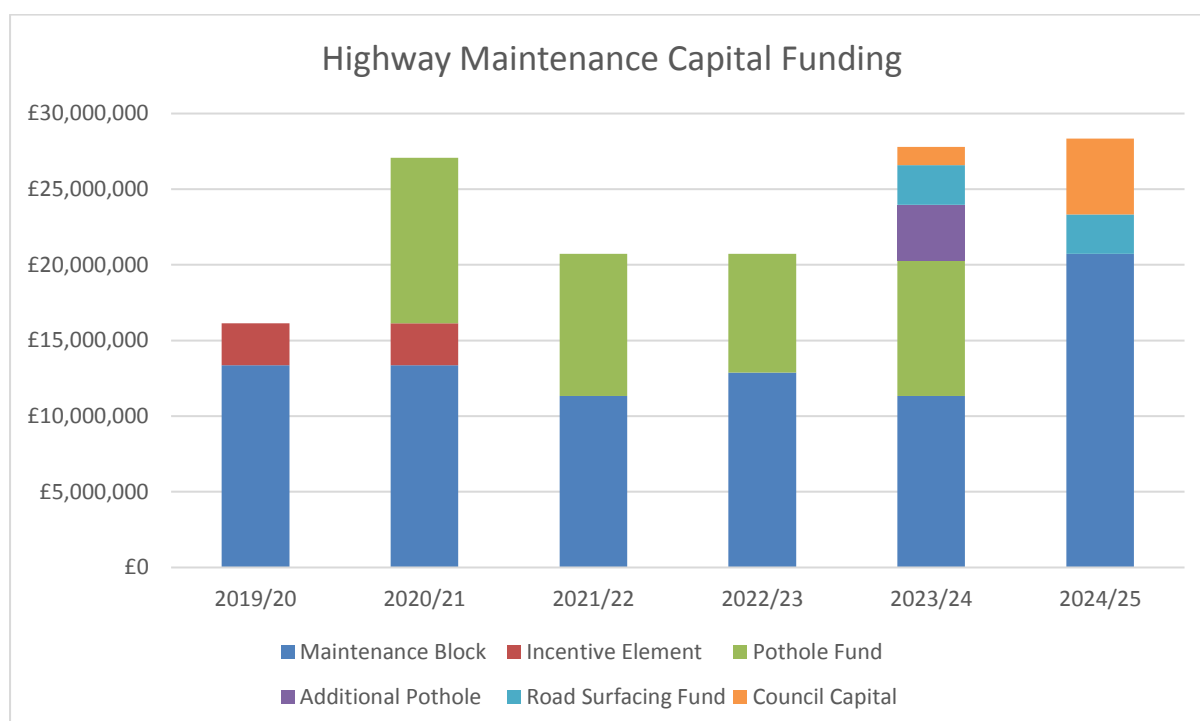
Item	Funding
Drainage	£500,000
Signs	£500,000
Road Markings	£200,000
Total	£1,200,000

The capital budget for highway maintenance of £27,786,000 for 2023/24 represented an increase compared to previous years.

Highways Maintenance Funding 2024/25

There has been a significant level of funding for highway maintenance in recent years from the DfT:

Funding	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Maintenance Block (DfT)	£13.357m	£13.357m	£11.330m	£12.870m	£11.330m	£20.727m
Incentive Element (DfT)	£2.782m	£2.782m				
Pothole Fund (DfT)		£10.930m	£9.396m	£7.857m	£8.957m	
Additional Pothole (DfT)					£3,685m	
Road Surfacing Fund (DfT)					£2.614m	£2.614m
Wiltshire Council Funding					£1.200m	£5.000m
Total DfT Funding	£16.139m	£27.069m	£20.726m	£20.727m	£26.586m	£23.341m
Total Funding	£16.139m	£27.069m	£20.726m	£20.727m	£27.786m	£28.341m



The funding available for road resurfacing in 2024/25 has been increased because of additional funding from DfT through the Road Surfacing Fund and from the Council's own capital funding:

2024/25 Highway Maintenance Budget	Source	Funding
Highways Maintenance Block and Pothole Fund	DfT	£20,727,000
Road Resurfacing Fund (DfT) 2023/24	DfT	£2,614,000
Road Resurfacing Fund (DfT) 2024/25	DfT	£2,614,000
Additional Highways Funding	Wiltshire Council	£5,000,000
Total		£30,955,000

The indications are that funding for future years could also be substantial.

Road Maintenance Priorities 2024/25

Road safety is a priority for Wiltshire Council and keeping the road network and the associated highway assets in an appropriate condition is vital. A two-phase strategy is being used to meet the carriageway asset management objectives, making use of the additional funding provided by DfT and by the Council.

In the short term, the strategy is to ensure that the network is maintained in a safe condition by treating safety defects, which may require the temporary diversion of resources, including Parish Stewards, from non-safety routine tasks. This is a 'worst first' approach to asset management which can be less efficient but in the short term is sometimes required to address safety issues.

In the longer term, the focus will be on repairing the damage caused by the severe weather, particularly from the flooding and winter of 2023/24. This will require programmes of treatment and surfacing work of various types to improve the condition of the network and halt the recent decline as evidenced by the carriageway condition surveys.

The programme of surfacing works will need to be across all road types as the survey results have indicated that there is a need to reduce the proportion of roads in poor condition on all classifications of road.

The results of the skid resistance surveys carried out in accordance with the Skid Resistance Policy have been used to develop a programme of works considering skid deficiency, accidents, speed environment, investigatory level, and road hierarchy. These works are being integrated into the main surfacing and carriageway treatment programmes.

Whilst the maintenance of carriageways will be a priority during 2024/25, funding will also be required for other highway assets, especially bridges, drainage, footways, traffic signals, signs, road markings, and street lighting.

In the longer term there is likely to be a need for greater investment in footways, pavements and pedestrian areas, and it is proposed to carry out a more substantial programme of footway renewal in 2025/26 when it is anticipated that the more pressing carriageway safety issues have been addressed and the major works at the landslip at Lyneham Banks have been completed.

The proposed expenditure on highway maintenance in 2024/25 is shown below. It should be noted that during the year the budget allocations may need to be adjusted in response to changing circumstances, or because of the need to coordinate schemes with the other work on the network or other unplanned events.

Proposed Highways Maintenance Budget 2024/25

The proposed budget for 2024/25 has been allocated to the various asset and treatment types based on identified need, with the majority of the proposed expenditure being on various road surfacing and treatments to reflect the current condition of the network.

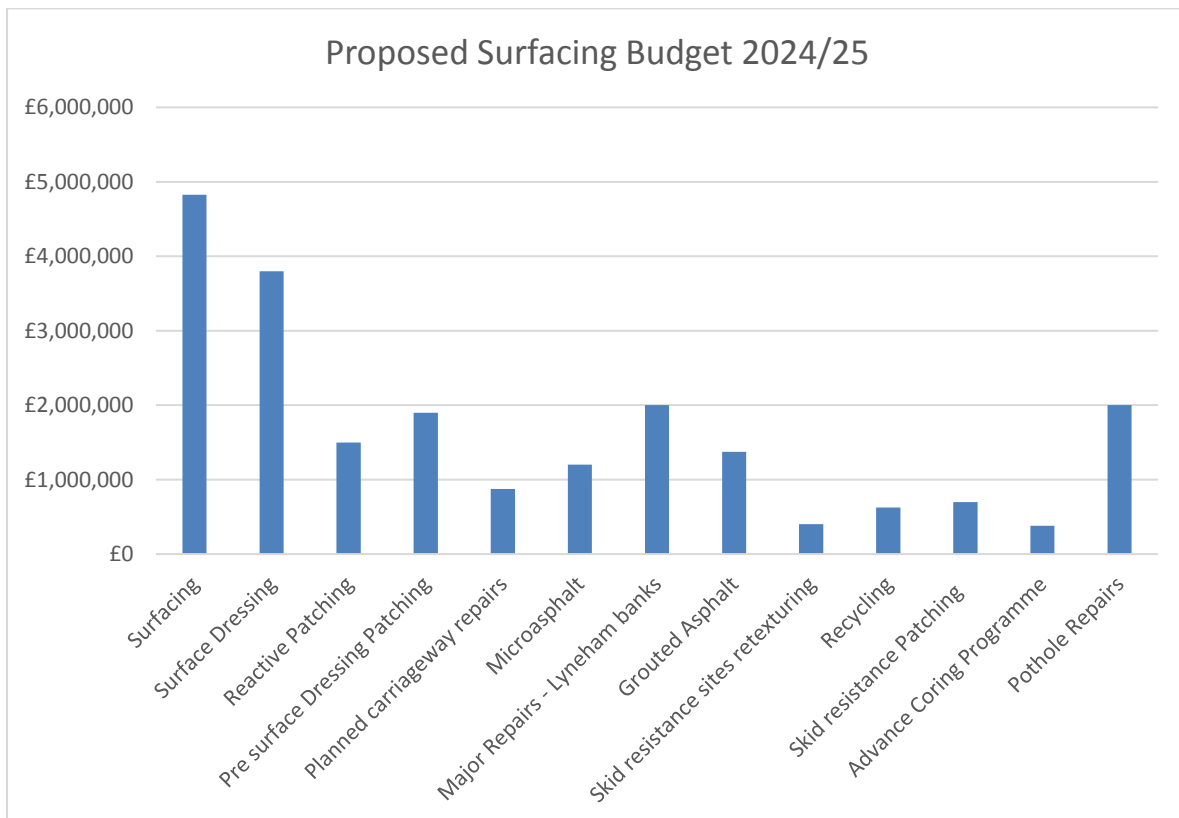
Item	Budget
Surfacing	4,828,000
Surface Dressing	3,800,000
Reactive Patching	1,500,000
Pre surface Dressing Patching	1,900,000
Planned carriageway repairs	875,000
Microasphalt	1,200,000
Major Repairs - Lyneham Banks	2,000,000
Grouted Asphalt	1,375,000
Skid resistance sites retexturing	400,000
Recycling	625,000
Skid resistance Patching	700,000
Advance Coring Programme	380,000
Pothole Repairs	2,000,000
Footways	1,275,000
Verge Repairs	750,000
Signs and road markings	200,000
Traffic Signals Lighting Columns	1,050,000
Drainage	890,000
Bridges	750,000
Rights of Way	200,000
Surveys	7,000
Consultants Fees	1,500,000
Staff Costs	500,000
Contract Overheads	2,250,000
Total	30,955,000

The budget allocations may need to be varied and adjusted during the year in response to changing circumstances and expenditure will continue to be monitored and reviewed by the relevant service delivery teams.

The proposals include a significant proportion of the funding for road surfacing in view of the recent weather damage. The proposed expenditure for road surfacing types, excluding overhead, staff and other asset expenditure are:

Treatment	Budget
Surfacing	4,828,000
Surface Dressing	3,800,000
Reactive Patching	1,500,000
Pre surface Dressing Patching	1,900,000
Planned carriageway repairs	875,000
Microasphalt	1,200,000
Major Repairs - Lyneham banks	2,000,000
Grouted Asphalt	1,375,000
Skid resistance sites retexturing	400,000
Recycling	625,000
Skid resistance Patching	700,000
Advance Coring Programme	380,000
Pothole Repairs	2,000,000
Total	21,583,000

The budget for pothole repairs has been increasing in recent years because of the need to address the increased number of potholes, and this has been increased again for 2024/25 to £2,000,000.



As well as surfacing, surface dressing and micro asphalt programmes, the budget includes for the use of grouted asphalt at the higher stress sites, and a programme of skid resistance improvements.

Funding of £2,000,000 has had to be included for the major repairs at Lyneham Banks this year.

The county's bridges are generally in good condition and the budget has consequently been decreasing in recent years. However, the budget for verge strengthening has had to be increased because of the damage during the continuing wet weather during the winter.

Funds have also been included for maintenance of traffic signals, drainage, signs, road markings and other highway assets.

The integration of carbon reduction with the future maintenance processes will continue, including consideration of the use of materials that are manufactured and delivered in more carbon efficient ways, and the plant and equipment used on site which can include running on battery power and Hydrotreated Vegetable Oil (HVO) fuels.

A detailed breakdown of budget allocations and source is included at **Appendix A**.

The list of sites for surfacing are included in **Appendix B**, which also includes the indicative schemes for the following years.

Budget Allocations

The proposed expenditure described has been allocated to the individual funding sources for monitoring and accounting purposes:

DfT Maintenance Block and Pothole Fund	Budget
Surfacing	
Surfacing	3,150,000
Reactive Patching	1,500,000
Skid resistance Patching	700,000
Planned carriageway repairs	800,000
Advance Coring Programme	280,000
Subtotal - Surfacing	6,430,000
Surface Dressing Preparation	
Pre surface Dressing Patching	1,400,000
Subtotal Surface Dressing Preparation	1,400,000
Specialist Surfacing	
Grouted Asphalt	950,000
Skid resistance sites retexturing	400,000
Subtotal - specialist surfacing	1,350,000
Drainage	
Drainage - CCTV Investigations	220,000
Drainage Schemes	220,000
Land Drainage Schemes	400,000
Subtotal	840,000
Pothole repairs	
Potholes Gangs	600,000
Pothole Bobcat	600,000
Pothole Hand Patching	350,000
Velocity Patcher	450,000
Subtotal - Pothole Repairs	2,000,000
Highway Infrastructure	
Masonry repairs (Slabbing)	50,000
Footway Resurfacing	900,000
Footway Reactive	250,000
Verge Overruns	250,000
Road Marking renewals	150,000
Sign renewals	50,000
Lighting Column Replacement	50,000

DfT Maintenance Block and Pothole Fund	Budget
Subtotal - Highway Infrastructure	1,700,000
Staff, design, supervision, overheads	
Atkins Fees	1,500,000
Client Fees	500,000
Term Maintenance Contract overheads	2,000,000
Surfacing Contract Overheads	250,000
Subtotal - Design, staff etc	4,250,000
Other Assets	
Bridges, structures, retaining walls	750,000
Traffic Signals and crossings refurb	1,000,000
Major Repairs - Lyneham Banks	1,000,000
Lidar surveys	7,000
Subtotal - Other Assets	2,757,000
Total Structural Maintenance	20,727,000
DfT Road Resurfacing Funding	Budget
Resurfacing	
Surface dressing	3,800,000
Grouted Asphalt	228,000
Microasphalt	1,200,000
Total Road Resurfacing Fund	5,228,000
Wiltshire Council Increased Highway Investment	Budget
Surfacing	1,750,000
Pre surface dressing patching	500,000
Planned carriageway repairs	75,000
Advance Coring Programme	100,000
Grouted Asphalt	125,000
Recycling	625,000
Major Repairs - Lyneham Banks	1,000,000
Improvements to Rights of Ways	200,000
Verge Overruns	500,000
Advance Drainage Improvements	50,000
Footway Sealing	75,000
Total Increased Highway Investment	5,000,000

Note: Adjustments between budgets may be required as work progresses and in view of circumstances such as weather damage.

Appendix B