



HIGHWAYS AND TRANSPORT ASSET MANAGEMENT STRATEGY

Surrey County Council

June 2016

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Executive summary

Surrey County Council's corporate strategy '[Confident in Surrey's future: Corporate Strategy 2016-21](#)' sets out the Council's priorities and strategic goals. These are:

Wellbeing – Everyone in Surrey has a great start to life and can live and age well

Economic Prosperity – Surrey's economy remains strong and sustainable

Resident Experience – Residents in Surrey experience public services that are easy to use, responsive and value for money

These goals need to be delivered against the backdrop of increasing demand and reductions in funding.

Managing a highways network the size of Surrey is complex and challenging. As Highway Authority and Lead Local Flood Authority, we are responsible for assets with a gross replacement cost of £7.8 billion, including over 3,000 miles of roads, 1,800 bridges and structures and 3,262 miles of pavement. Most of the assets we look after are obvious to users (roads, pavements, bridges, tunnels, street lights and so on). However we also manage assets that are less visible, such as embankments and safety barriers. Few of our assets are in an 'as new' state and with a limited budget we have to prioritise our work to achieve best value.

The network is heavily trafficked reflecting Surreys' high economic output, used daily by the majority of the travelling public for commuting, business, social and leisure activities. At a local level it also helps to shape the character and quality of the environment. The successful management of our highway infrastructure therefore plays a vital role in delivering the broader outcomes set out in the Council's overarching goals.

Our response to this challenge can be found in our [5 year strategic Business Plan 2016-21](#), which aligns all our activities to the delivery of the Council's corporate goals, setting out how, over the next 5 years we will:

- Improve and grow Surrey's highway infrastructure;
- Maintain and operate the network;
- Develop our service.

One of the key drivers to the successful delivery of the business plan is the service wide embedding of our new 15 year Asset Management Strategy. Surrey was one of the first authorities to develop an Asset Management Plan in 2005 (STAMP) and it was refreshed again in 2014. This strategy is aligned with best practice set out in the [Highways and Infrastructure Asset Management Guidance](#) published by the UK Roads Liaison Group (UKRLG) and the Highways Maintenance Efficiency Programme (HMEP), including

- Consulting with members and users to determine their priorities.
- Continuing with the completion of a physical network inventory and assessment of current condition;
- Undertaking depreciation modelling of all our assets over a 15 year period;
- Assessing the impact of different states of condition of our assets on the Council's key priorities;

We already have a proven track record of the application of sound asset management principles delivering value for money. In 2012 17% of Surrey's road network was in need of structural repair. We developed the innovative [Horizon](#) programme to reduce the length of the network in need of structural repair to 12% over 5 years by resurfacing around 10% of the worst condition roads. At the time that Horizon was conceived, annual programmes of work were the norm in the highways industry; working in partnership with our Highways contractor we recognised the benefits that a long term programme of works would bring. For example, contractors would be able to give discounts due to long term continuity of works and specialist programmes of work could be developed.

Horizon is on track to achieve its critical success factors and we are now able to consider a different investment strategy applying the same successful procurement principles. What we can achieve is of course dependent on the level of funding we receive. Improvements to our highway assets are funded from our capital budget, which is largely made up of two grants from central government – the Maintenance Block Grant and the Integrated Transport Grant. A recent change in the way the former is paid has resulted in more certainty over the funding we can expect to receive over the course of the parliament. This means we can plan over time with more confidence, although the funding is not ring fenced to us and some aspects are competition based and so there is less certainty for some parts of the funding.

The government has introduced an [Incentive Fund](#) element to the grant which now directly links our funding to the ability to demonstrate sound asset management. Highway Authorities will be ranked as Band 1, Band 2 or Band 3, with Band 1 being those judged to be the worst performing. Band 1 authorities will receive a 15.5% reduction in highway maintenance funding by 2021. In terms of the funding Surrey receives this would mean a reduction in funding of nearly £8 million over this period if we are rated as Band 1 and £4.3 million as Band 2. Surrey is currently rated as Band 2, and we are aiming to be Band 3 by 2017. If we remain at Band 2 we would lose £24 million in funding over the 15 year life of the strategy if the DfT continues with this approach.

We have considered four scenarios when developing our investment strategy:

Scenario one – our current asset investment levels	Cost p/a: (£24.6m)
Scenario two – doing the minimum to meet statutory requirements,	Cost p/a: (£16.6m)
Scenario three – maintaining current condition levels,	Cost p/a: (£29.9m)
Scenario four – re-balancing investment levels across the different asset types.	Cost p/a: (£24.6m)

Taking into account current financial constraints we believe that Scenario four offers the best option. Investment can be rebalanced as the success of [Operation Horizon](#) enables us to reduce spending on roads and increase spend on pavements, structures, traffic signals and barriers. We believe that within the funding constraints of the County’s Medium Term Financial Plan (MTFP), this will provide the best outcomes for Surrey over the 15-year period. The investment strategy proposed is will not be sufficient to prevent deterioration on all our assets. Investment has also been targeted to minimise revenue pressures caused by the need to keep the network safe as further deterioration occurs and we do not expect the revenue requirement to increase as a result of this strategy.

In the modelling we have also assumed that funding will continue to be available to us for more significant schemes through bidding for funding from the Local Growth Fund and the Challenge Fund. We have also assumed that we will achieve Band 3 status from 2017 and will therefore receive the full share of the DfT Incentive Fund and that we will receive similar levels of funding from the Pothole Action Fund as in 2016. No allowance has been made for significant single projects requiring large investment.

The modelling assumes normal deterioration patterns, and no allowance has been made for any significant damage caused by severe weather events so in the event of a severe weather event, if central government and/or the council do not provide additional funds the programmes of work described in this plan will be suspended to deal with any unforeseen damage to the network.

Whilst we have modelled the strategy over a 15-year period, we of course recognise that things can change over time; we could get a greater or lesser share than anticipated from the DfT competition based elements of the Maintenance Grant or council priorities could change. Therefore we will review our budgets annually in line with corporate budget setting arrangements and will refresh our modelling every 5 years in line with our strategic business plan review timetable.

There are also numerous ongoing improvement activities within the service to ensure effective delivery of the strategy. These include organisational design based on a commissioning approach and the development of a whole service performance framework, ensuring delivery of the business plan and end to end processes.



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1. User Needs and Delivering Outcomes

Surrey's highways are used daily by the majority of the travelling public for commuting, business, social and leisure activities. How we prioritise our investment must take our users' needs into account. We also need to ensure that what we do is aligned with the Council's [corporate strategy](#) and delivering the broader outcomes contained within it. Our [5 year business plan](#) sets out our high level aspirations and shows how what we do will ensure that Surrey's highways assets support the strategic objectives for the entire county.

This strategy exists to set out our approach to delivering our strategic goals and the key improvement activities that need to take place to enable this.

1.1. Asset Management Policy

The highway asset is the most valuable one under our control and is crucial to facilitate safe movement, which enables Surrey to be the largest net contributor to the UK economy outside of London. We have a key role to play in meeting the strategic goals set out in our corporate strategy. We will therefore ensure that we are supporting the Council's overarching aims, as detailed below. We will continually review our progress in this and take actions through our review mechanisms to identify improvement initiatives where necessary.

1.1.1. Supporting Wellbeing

Our network is relied on by thousands of people and businesses every day. Our service supports the people of Surrey by making streets safe and reliable, offering more travel choices, making them sustainable and providing residents with access to schools, health services and care. The quality of the highways can have a direct impact on people's ability to live independently and on the choices people make in moving around the county.

1.1.2. Supporting Economic Prosperity

The highways and transport infrastructure we build and maintain provides the foundation of a strong economy in Surrey, creates routes in to businesses, jobs for residents and access to homes and communities where people want to live. Improving Surrey's highway network is one of the Council's key objectives in building the local economy. This includes capital investment in new schemes, as well as a more network oriented approach to asset management. We aim to deliver value today whilst planning and investing for the future.

1.1.3. Supporting Resident Experience

Residents are at the heart of how services are designed and delivered; with appropriate influence, control and choice on issues that are important to them. Our professional service provides high quality, innovative solutions that ensure Surrey residents get value from the network now and in the future. We aim to work closely with partners to deliver the best outcomes for our residents, delivering to their needs and priorities. We will utilise new technologies to improve the way services are delivered and communicated.



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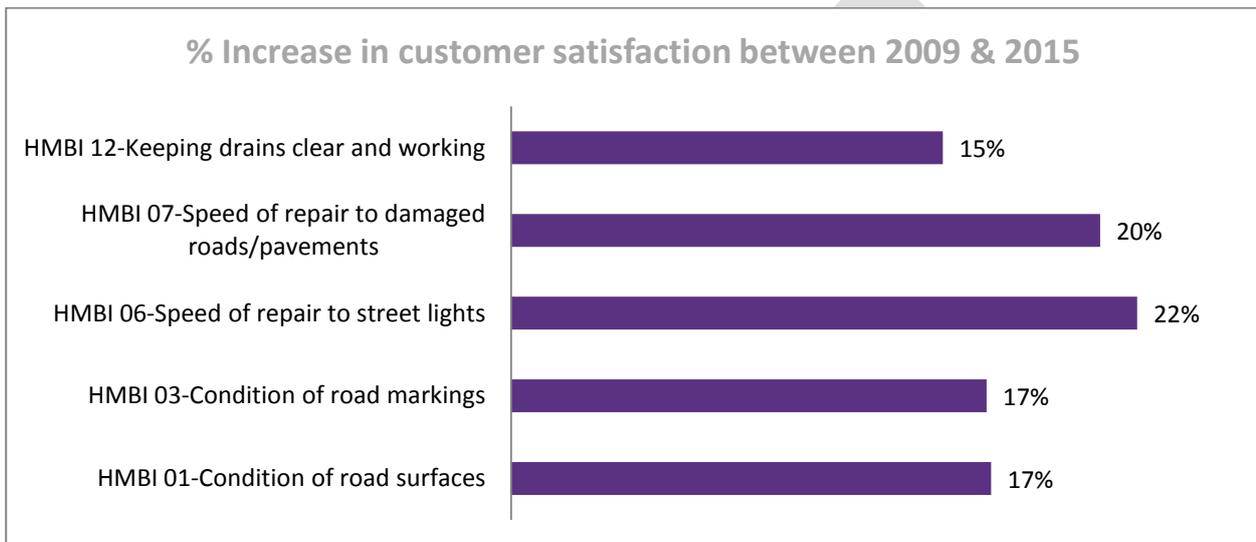
1.2. Residents' and service users' priorities

Our approach and how we achieve these ambitions is guided by residents, service users and Members who help us to identify the priority activities for the service and how we best achieve Surrey's goals.

1.2.1. National Highways and Transport Public Satisfaction Survey (NHT)

NHT data is invaluable in identifying the preferences of customers, with analysis conducted to identify key drivers for overall levels of satisfaction with the Highways network. The survey is conducted across residents of a number of councils on an annual basis. We recognise the value of this feedback and the ability to understand how we are performing relative to others. The results provide indicative themes of where the council is making a positive impact and where further work is required. Surrey's overall satisfaction levels with regards to Highway maintenance and condition issues within the survey have improved by 10% since the survey started in 2009. Figure 1-1 shows a number of areas where we have made significant improvements:

Figure 1-1 – Areas where customer satisfaction measured by the NHT survey has improved



In the latest survey we ranked 18th out of 27 County Councils that took part for overall satisfaction across the survey so there are still improvements that we need to make.

Highways maintenance comes out as a clear priority, with drainage, pavements and road safety also high priorities for maintaining service levels.

This is important to understand in managing the asset network as a whole. Budget constraints limit what can be spent across the entire network. Invariably, when funding is required to increase in one area it must reduce elsewhere to make up for this. By having a clear view of what level of service is required of each asset we are able to make more informed views on how best to allocate funding across the network.

1.2.2. Consultation with Senior Members and Officers

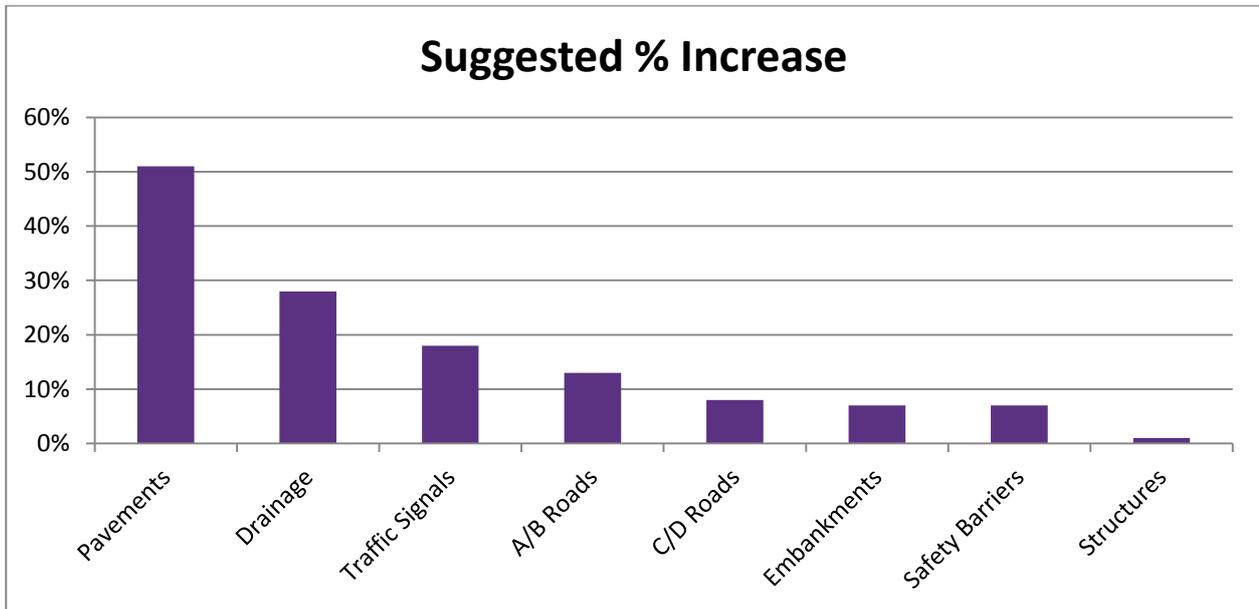
Whilst the NHT survey data can provide some insight into the needs and priorities of Surrey's residents, there are additional channels through which further feedback can be obtained. We have engaged with our senior Members and officers through a consultation event, allowing their views to act as another factor in shaping our strategy.

We used a consultation tool called *YouChoose*, developed specifically for local authority consultations, to gather senior Member's and officer's views on the prioritisation of funding allocation across highways assets. The tool sets out the current spending allocation across each asset and forecasts the impact this level of spending will have on the asset's condition in future. Users were then given the opportunity to reallocate funding elsewhere, based on the needs of their constituents and the local area. The impact of their changes was shown in the tool, helping Members to understand how different funding levels can impact on the overall condition of the highways network.

The results from this consultation are taken into account in presenting the public view of highways asset priorities, further helping us to understand how funding should be allocated across highways assets. The results are not representative of actual asset condition, but do give a clear indication of which assets are

most important to users. Figure 1-2 shows the average percentage increase desired based on the responses of senior members.

Figure 1-2 Member Consultation budget



The results show that our senior Members and officers place a high priority on more investment in pavements, with drainage also seen as key (perhaps as a result of flooding damage caused in recent years). These results differ slightly from the NHT survey results; the former places a lower priority on maintaining A and B roads, while the latter puts it firmly at the top of the priority list.

This disparity in results is not necessarily unusual, in that the NHT survey respondents are members of the general public and may place different levels of priority on asset types compared with Members. Members are more likely to have greater insight into the strategic view of the Highways and Transport plans, with an understanding of which assets have been earmarked for greater investment. Operation Horizon is a prime example, through which we have reduced the percentage of roads in need of structural repair from 17% in 2013 down to 13% by 2014/15; We will monitor future NHT surveys to ensure that this is leading to rising levels of satisfaction with the condition and accessibility of our roads. This may well explain why roads are not seen as a significant priority by Members as they understand the investment that has already been made, though users will only just be feeling the benefits.

It is important to balance both sources of information against each other as well as using empirical data such as condition data and knowledge of deterioration patterns in order to make the most appropriate decisions for the highway network.



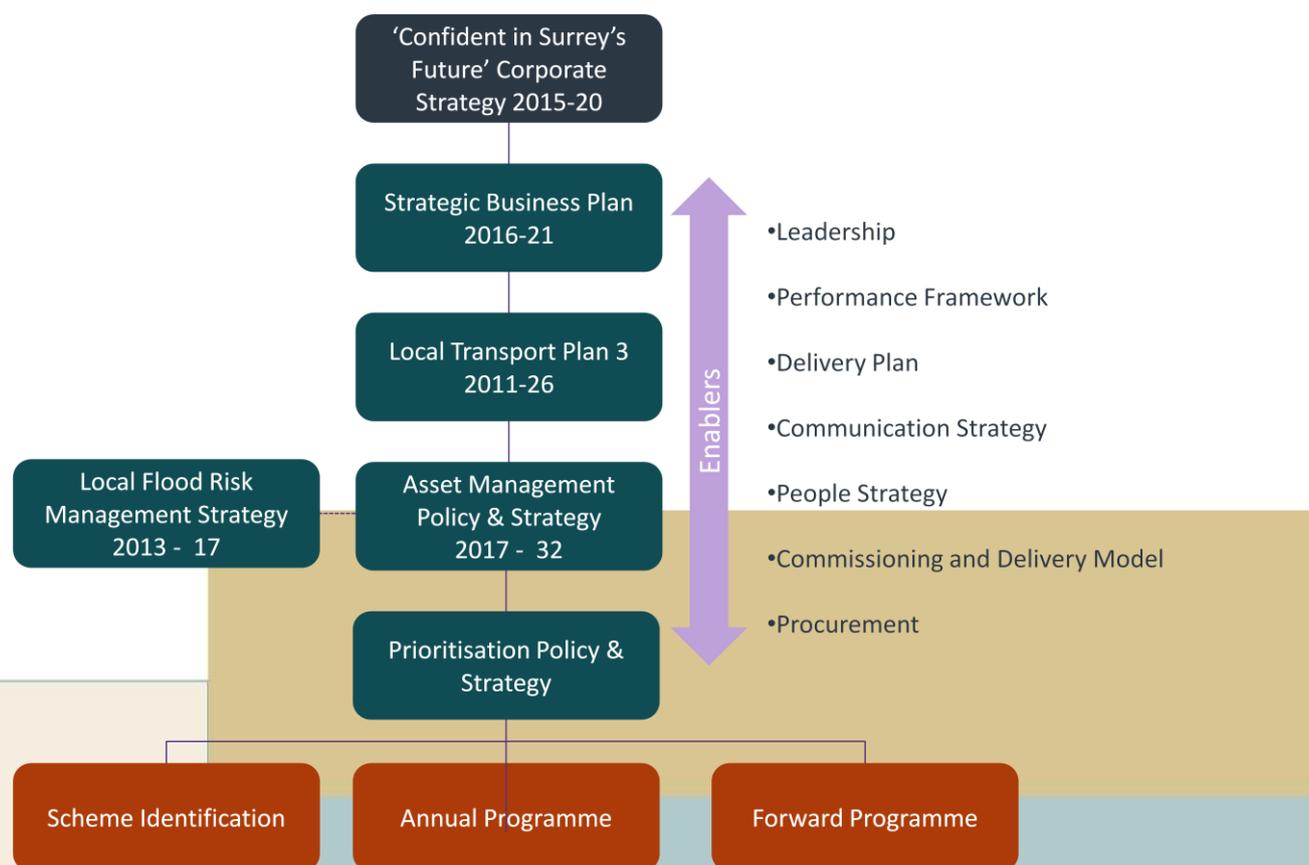
2. Approach to Managing Assets

In alignment with the [Highways and Infrastructure Asset Management Guidance](#) document published by the UK Roads Liaison Group (UKRLG) and the Highways Maintenance Efficiency Programme (HMEP) in 2013, our approach brings together a range of factors that influence asset management priorities.

2.1. Asset Management Framework

In accordance with the guidance stated above, we have aligned our strategy to key documentation within the organisation to ensure that not only are we aligned to the corporate vision and strategic goals, but that the planning and enablers required are in place and operating effectively. Figure 2-1 below identifies these key elements and how they are aligned with one another.

Figure 2-1 Asset Management Document Hierarchy



The corporate strategy sets the direction and context of the organisation and defines the Council's priorities. The strategic business plan sets out how our activities align to the delivery of the corporate priorities and ensures that this drives what we do. The asset management strategy and policy support the delivery of business plan and our Local Transport Plan. They set out our approach to asset management, performance, data and lifecycle planning. We also provide links to supporting documentation where relevant. The following sections begin with our overall approach.

2.2. Starting with user needs

Putting the needs of service users first is central to asset management. In practice, this means prioritising our efforts based on those activities that provide the greatest value to Surrey residents.

In developing Surrey's Highways Maintenance Asset Management Strategy, we have sought to engage with as wide an audience as possible and obtain information from a range of sources in order to better understand how highways assets contribute to achieving better outcomes for Surrey.

These sources include:

- Customer insight and resident satisfaction surveys undertaken by Surrey Council – including customer contact centre trends;
- Member's feedback on local priorities;
- Feedback from Local Highways Officers and area teams;
- National Policy and Priorities from partners such as the Department for Transport and Highways England;
- Regional Priorities set out by District and Borough Councils, Local Enterprise Partnerships and neighbouring County Councils;
- National and Regional highways surveys (e.g. NHT);
- Surrey County Council's Corporate Goals.

Section 1.2 of this document provides further explanation around how we have used surveys of local residents, in particular the NHT survey, as well as consulting with local Members to better understand the priorities of the areas they represent.

In addition to this we need to consider wider priorities set by national and local bodies. For example, Local Enterprise Partnerships (LEPs) present one of the most significant sources of capital funding. Their priorities reflect the national policies set by the Department of Transport and Highways England. It is important that, where appropriate, we align ourselves with these priorities, ensuring that we act at the forefront of best practice.

2.3. Understanding our assets

As the authority responsible for the condition of Surrey's Highways network, our primary duty is to protect users of our network, by keeping the network safe and ensuring appropriate protections are in place to reduce the risk of harm. This can mean conducting proactive work that may not be seen as a priority to residents in order to reduce risk and costs. Some assets are more visible than others. For example, people tend to notice defects in the highways more regularly than safety barriers or drainage. Drainage defects only become apparent when there is a situation requiring their efficient operation. However, this does not mean that they should be deprioritised. It is important that all assets meet, at the very minimum, statutory safety conditions.

To understand how much work we need to do to maintain Surrey's assets requires a good understanding of the current condition and how this is expected to change over the short, medium and longer term. We have used a wide range of asset condition modelling tools to analyse and understand what the demand will look like for each asset class. Section 3 provides further information on the current state of Surrey's assets and describes the forecast deterioration rates of each asset type based on specific funding scenarios.

2.4. Capital and Revenue Spend

By having a clear understanding of the forecast asset deterioration we are able to assess how different levels of funding can impact on this condition forecast. Some assets will require significantly greater investment to improve their condition than others. The balance between capital investment (work that provides long term maintenance/improvement e.g. resurfacing a road) and ongoing revenue investment (shorter term improvement e.g. filling potholes) must also be understood.

By providing initial capital investment the longer term revenue investment is likely to be reduced, potentially reducing the whole life cost of the asset. Conversely, if the asset is deteriorating but does not receive capital investment, it is more likely that ongoing revenue costs are greater, leading to a potentially greater whole life asset cost.

We must ensure that we balance the revenue and capital spend to ensure we are delivering the best value for the residents of Surrey. If capital investment is not supported by adequate ongoing revenue spend then the initial investment value may be reduced. Similarly, high levels of revenue spend needed to maintain assets that require capital investment may lead to disruption on the network, in the way that regular patching of roads does.

2.5. Levels of service

How we plan our maintenance work is a key element of our asset management strategy. To do this effectively we need to understand the varying needs and expectations of our residents and service users as these will reflect our service delivery standards.

To keep the whole network in its current condition will cost £30m capital investment per year over the next 15 years. However, standards for highways assets will vary according to their use and the risks involved.

If, for example, the condition of well used pavements needs to improve to ensure safe passage and encourage sustainable transport for commuters, school children, leisure walkers; the allocation of funding to this asset will also need to increase, which will mean having to reduce spending elsewhere. By setting standards appropriate to the use of specific parts of the network we are better equipped to understand and meet the demand and user priorities for each asset type in the most efficient way.

2.6. Prioritising our efforts

Our analysis has drawn together the priorities of highways service users with the current and forecast condition of our assets in order to determine what service levels Surrey Highways and Transport needs to provide.

To support our decision making, as previously described we have engaged with council Members, public and private sector partners and Surrey residents on their priorities. From this analysis we have been able to identify which parts of the network require the most attention from a service user's perspective, the priority areas for further investment and the level of service that residents want from the network. All of these things are essential in shaping the asset management strategy and funding plans.

The allocation of our asset maintenance budget is based on this analysis and also on opportunities to improve outcomes for Surrey i.e. improving wellbeing or resident experience by effectively allocating our funding across the asset network.

In prioritising the funding applied to each asset we must also understand the impact different levels of funding will have on each asset. Some assets will only require a relatively small amount of funding to significantly improve their condition. Whilst this may be a large percentage increase in funding the actual amount required may be small in comparison to other assets. In the same way, other assets may require significant amounts of investment to drive any tangible improvement in condition, but this may be seen as a relatively low percentage increase due to the already high budget.

We must also understand where we are able to reduce funding without having a significantly adverse effect in order to improve condition in other areas.



3. Overview of Assets and Analysis

Managing a highways network the size of Surrey is complex. It involves the maintenance of a number of different asset types. Some assets may be used by individuals more regularly than others. People's demands on assets will also vary based on their individual needs.

When we talk about highway assets we are most commonly referring to the roads, pavements, bridges, traffic signals and street lights¹ that you can see as you move around Surrey. We also manage a number of assets that are less visible to users, although they still play a very important role in the efficient operation of the highway network. These assets include embankments, safety barriers and drainage. If the condition of any of these assets deteriorates significantly there will be a significant impact to the network. There are a number of smaller assets that we also focus on, for instance traffic signs; we will analyse these using the same approach going forward.

The purpose of this strategy is to specify the solutions that will enable the council to manage its highway assets in the most efficient and effective way, allocating funding appropriately and ensuring that users' needs are met by taking a long term planning approach. To enable us to do this, we must take a holistic view of all of our assets and understand the general condition of each. Taking into account the needs of highway users, the condition of the highway assets and budgetary constraints, we have assessed a number of options to identify the most appropriate asset management budget. We will continue to measure the condition of our assets in line with national best practice to monitor performance against identified targets.

. This section focuses primarily on our capital budget which is allocated for significant maintenance and repair, however we have also taken account of the revenue impacts of all of the proposed scenarios and have attempted to identify capital strategies which will not negatively impact on the level of revenue required for smaller scale and ongoing costs such as filling potholes, cleaning bridges and cleaning gullies. This section gives an overview of each highway asset and describes the current condition of each asset category individually. Our Asset Data Strategy can be found at Annex A and further information on each of the asset categories can be found at Annex B. . These summaries also include detailed information on the depreciated value of our assets.

3.1. Roads

The roads that run through Surrey have among the highest levels of use in the UK, providing access to jobs, schools, services and businesses for a wide range of users. The high levels of use make roads the primary asset that we manage, consuming the largest capital spend of all our highways assets.

An increased level of spending on roads in the past 3 years as part of our Operation Horizon programme has led to a significant improvement in road condition which has fallen from 17% in "red" condition to 13%.

For the purposes of this strategy roads have been split in to two broad groups: A/B Roads and C/D Roads. The current MTFP spending on roads provides an allocation to all roads of £19.5m per annum which is spent at an approximate ratio of 1/3 on AB roads and 2/3 on CD roads (CD roads make up over ¾ of our total network length). All of the data was modelled using UKPMS software and the HMEP lifecycle planning tool.

¹ street lights have not been modelled as part of this strategy as they are managed by SKANSKA by way of a private finance initiative (PFI)

3.1.1. A/B Roads

A/B Roads provide routes which generally allow traffic to move faster over longer distances or link larger villages to the main highways network, consisting of both single and dual carriageways.

The A/B Roads which run through our county are well constructed, designed to carry a wide range of vehicle types and generally in good condition. Around 5% of A/B Roads fall within the red condition class, meaning they require structural maintenance with a further 7% falling into the amber condition rating meaning they require lesser level repairs such as surface treatments to increase their longevity.

Current spending of around £6.5m per annum is leading to an improvement in overall condition across the next 15 years, indicating that some investment could be re-prioritised elsewhere to support other assets.

Figure 3-1 shows the asset condition based on the current level of spending while Figure 3-2 indicates condition levels where funding is allocated to maintain current condition levels in terms of the % of the network in 'red' condition. Current funding will increase the condition of the asset. [Operation Horizon](#), Surrey's £100m scheme to resurface roads across the county, has played a significant role in increasing the condition of the A and B roads. As a result, we believe that some of the budget for A/B Roads can be reallocated to other assets without significant negative impact on road condition.

Figure 3-1 A/B Roads – Current Funding Levels

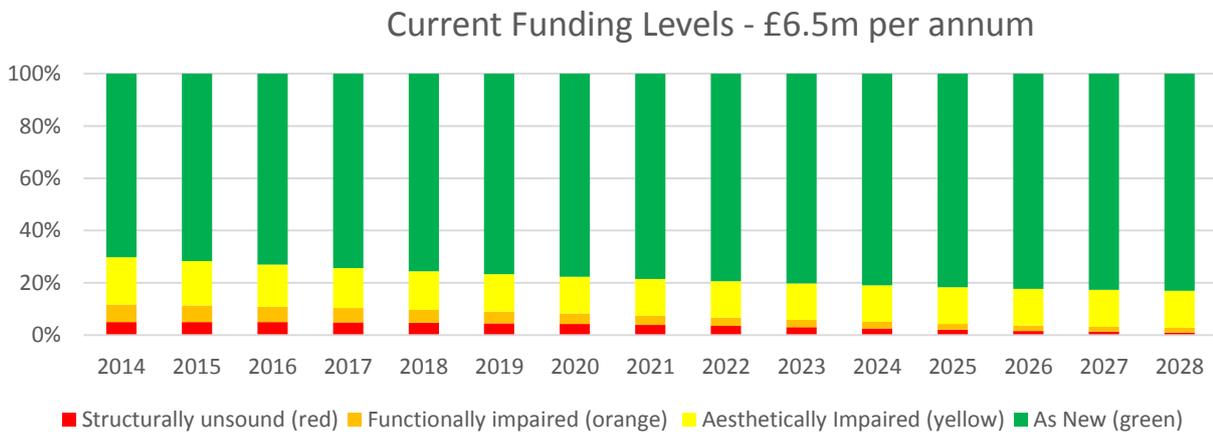
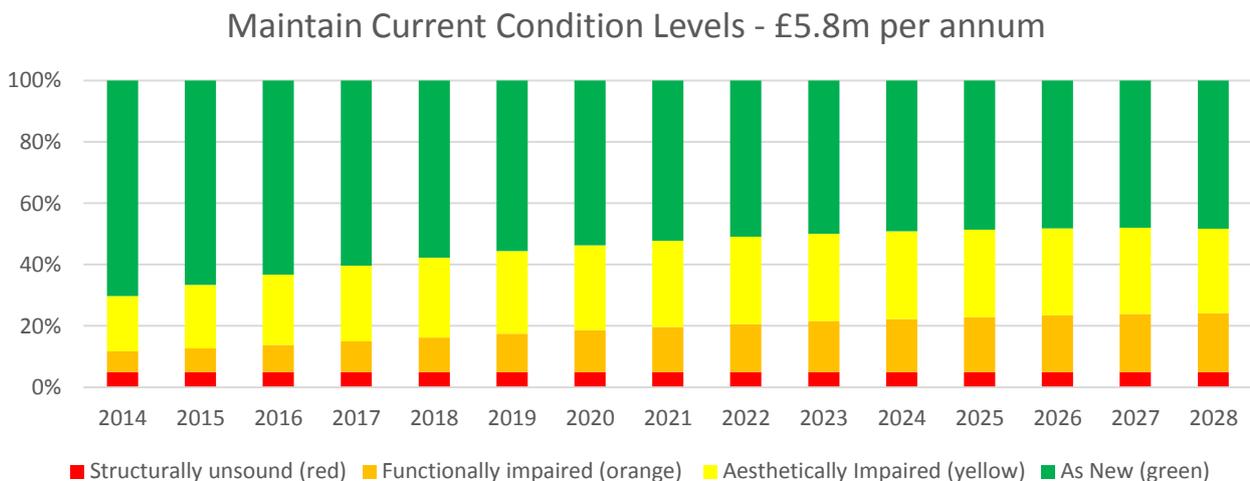


Figure 3-2 A/B Roads - Maintain Current Condition Levels



3.1.2. C/D Roads

C/D Roads are generally smaller roads which may link smaller villages or run through housing estates. The condition level of our C/D Roads is not as high as our A/B Roads, with around 16% of C/D Roads falling within the red condition class and a further 7% falling within the amber class. However, current spending of £13m per annum will lead to a clear improvement in condition, which will be especially pronounced compared to A/B Roads as the C/D Roads are starting from a lower condition level. The overall trends are similar to those identified for A/B Roads, allowing a similar approach to be taken. Figure 3-3 shows that by maintaining current spending the condition of the asset will increase significantly, indicating again that we may be able to reallocate some of this spending to other assets

Figure 3-3 C/D Roads – Current Funding Levels

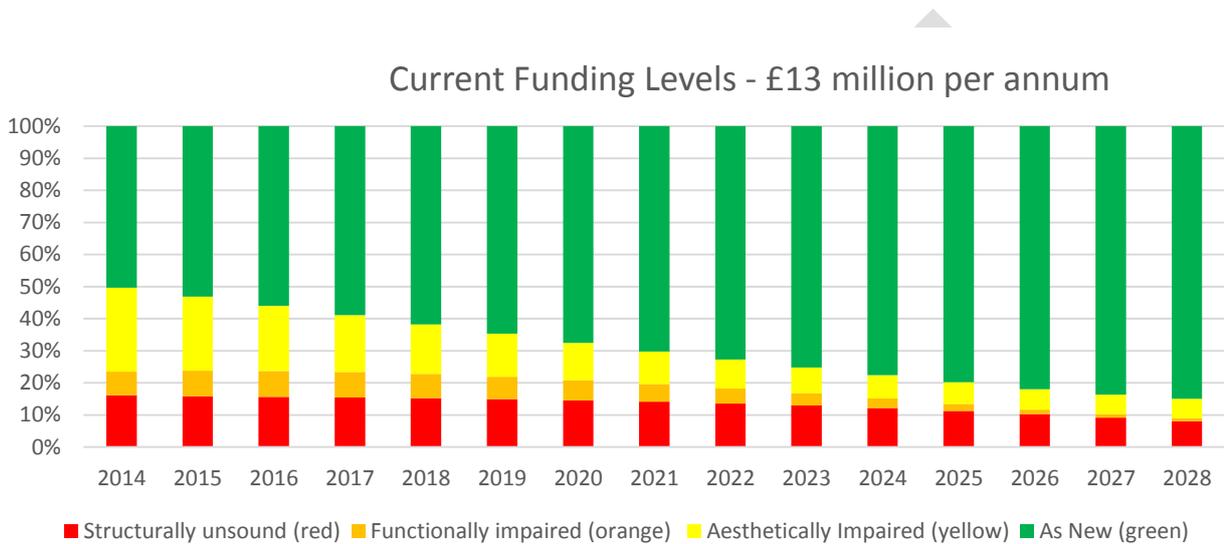
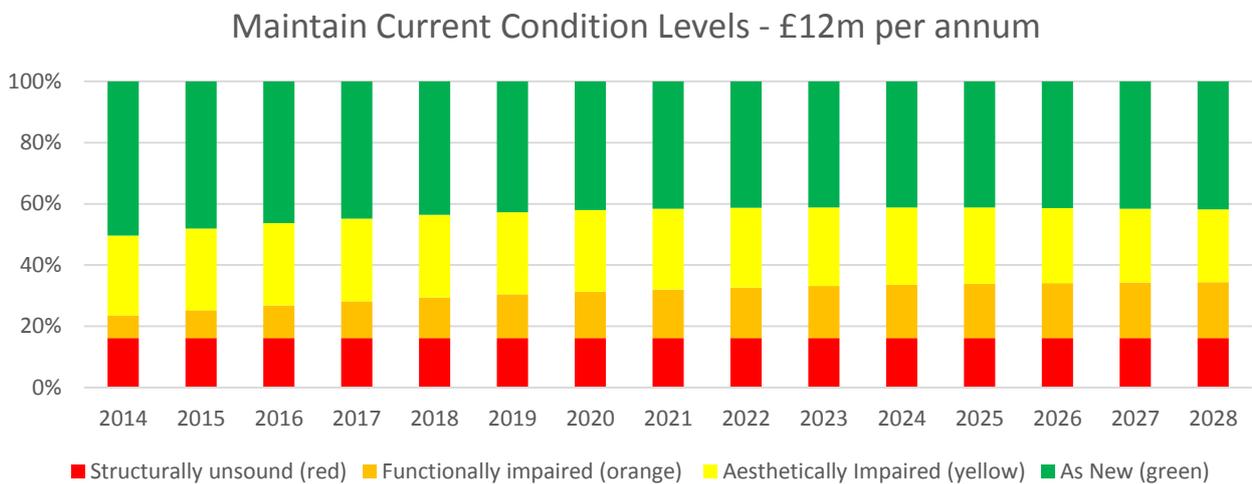


Figure 3-4 C/D Roads – Maintain Current Condition Levels

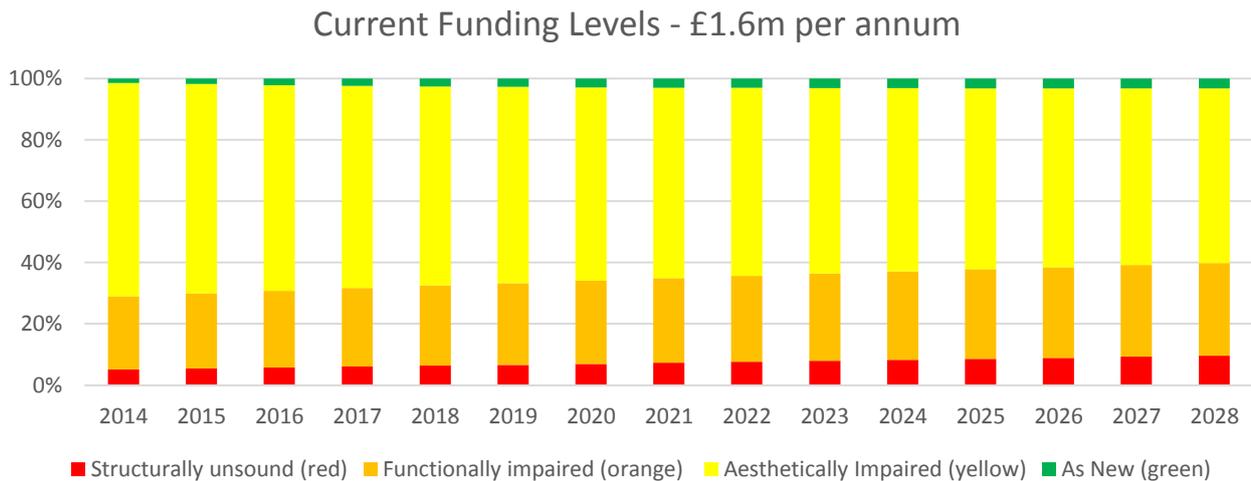


3.2. Pavements

Pavements provide restricted parts of the highway for pedestrians, which cannot be used by vehicles, other than designated cycle ways for cyclists. Pavements provide clear and safe passage for a wide range of users with different needs and requirements. As with roads, all of the data was modelled using UKPMS software and HMEP lifecycle planning tools.

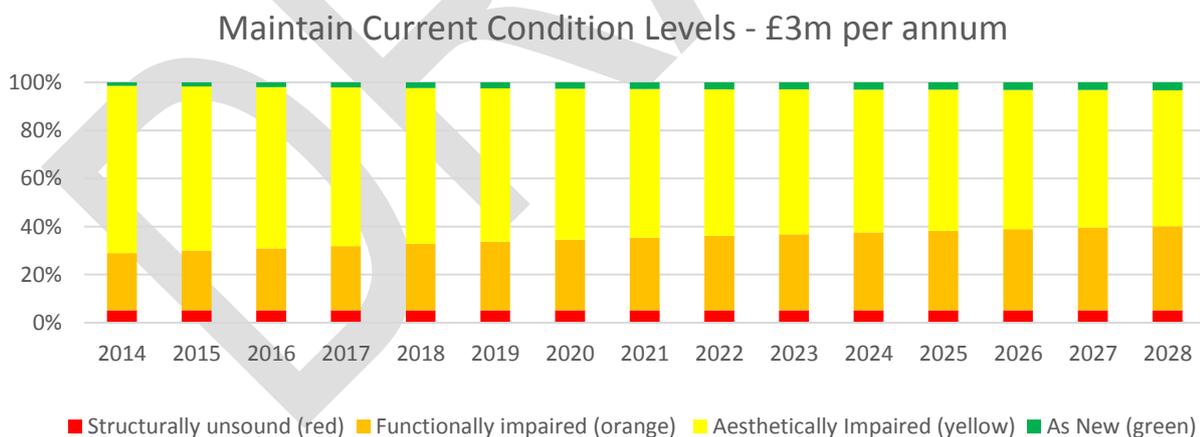
The analysis shows that significant investment in pavements is required as the current spending level of £1.6m per annum (Figure 3-5) is insufficient to fulfil a basic level of service. Pavements are subject to few statutory obligations so a level of judgement has been used around the criticality of the network and the potential impacts were certain stretches to become unsound.

Figure 3-5 Pavements – Current Funding Levels



Although there is forecast to be a slight increase in ‘as new’ pavements with current spending levels, the level of ‘structurally unsound’ pavements will increase. It should be noted, however, that the majority of Surrey’s pavements fall into the ‘aesthetically impaired’ category.

Figure 3-6 Pavements – Do Minimum to Meet Statutory Obligations



The annual spend required to maintain the current condition of pavements is higher than current funding, leading to an increasing gap between the two scenarios. Maintaining current funding indicates that the number of pavements that will become structurally unsound over the 15 year period will double from 5% to 10%. Funding will therefore need to almost double in order to maintain the condition at its current level.

These results are particularly important given the high impact that pavements footpaths have on users based on the NHT data, in terms of accessibility, condition and provision. The need for investment also reflects the responses provided in the Member Consultation, where pavements were considered to be the main priority area for investment.

3.3. Drainage

Drainage assets remove surface and flood water from the highways and away from buildings. The majority of the drainage network is underground, meaning it is not immediately obvious to the majority of highway users. Drainage plays an important role in the rate at which other assets deteriorate; for example, roads depend on the drainage network to remove surplus water from the road surface.

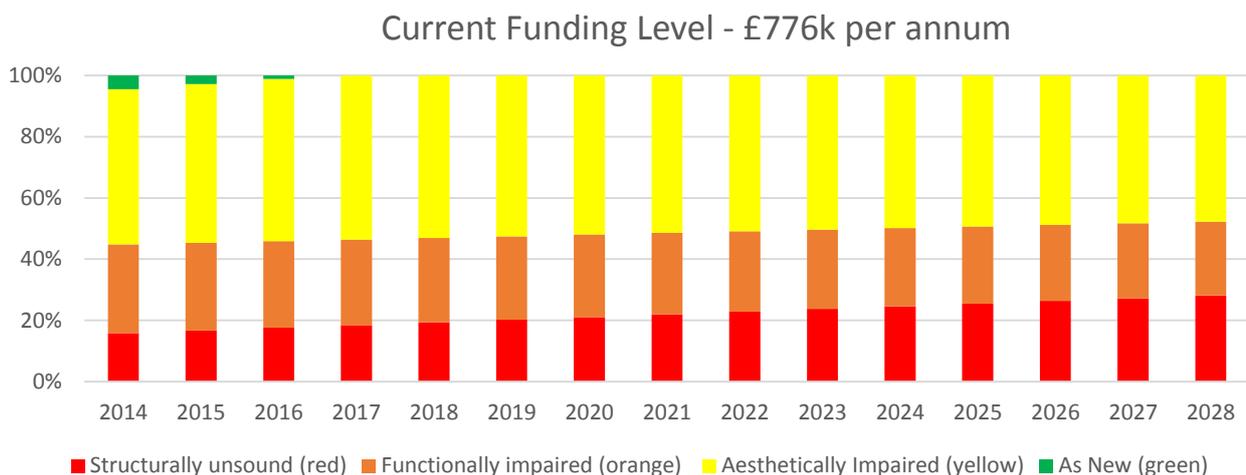
As with most of the UK, the drainage assets in Surrey require further mapping to develop a fully accurate picture of their location and condition, making it difficult to determine the scale of the asset and investment required. Therefore our analysis is based on the highest impact of flooding (wetspots) in Surrey, which is estimated to form up to 10% of the network. The data was modelled using a bespoke software database.

The NHT survey highlights the need to maintain service levels for drainage which is supported by the Member's Consultation that identifies drainage as a key priority. This may be in response to recent flooding in Surrey, highlighting the importance of effective drainage.

Around 40 new wetspots emerge each year, 25% of which require capital treatments. Other wetspots are either dealt with through revenue funds – gully cleaning etc. or are the responsibility of other parties, water companies, private landowners for instance.

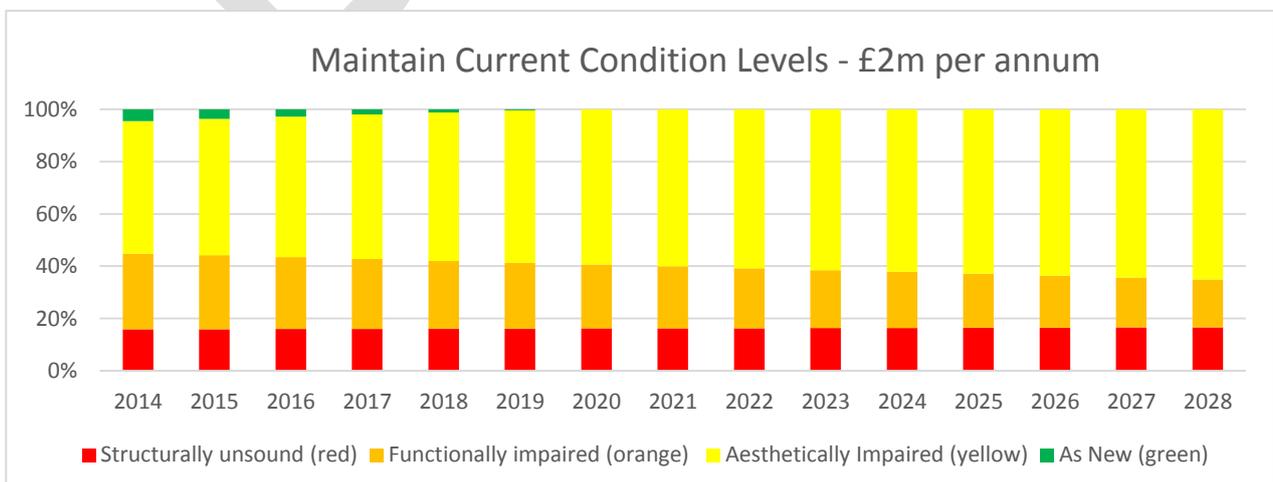
The MTFP allocation for drainage is £776k per annum. Spend at this level has been modelled and the results are shown at Figure 3.7. This indicates significant deterioration of the drainage asset over a 15 year period.

Figure 3-7 Drainage - Current Funding Levels



In order to maintain current condition levels (figure 3-8), the annual budget would need to increase by 160% from £776k to £2m.

Figure 3-8 Drainage – Maintain Current Condition Levels



3.4. Structures

Structures are the bridges, culverts, chambers, subways and retaining walls that support the roads and pavements. Many structures in Surrey are managed by third parties such as Network Rail and Highways England. This removes principal responsibility from the Council, although regular liaison with these third parties is essential to ensure that work across these assets is effectively coordinated. We use Bridgestation to model all of our Structures assets.

The current level of spending on structures is £1.9m per annum, as shown in Figure 3.9. There is a funding gap of over £10.5m over 5 years to maintain current condition levels. This indicates we will need to increase spending significantly, particularly given existing issues with accessibility and weight restrictions across the county.

There are few specific measures of satisfaction with structures but there are certainly impacts for wellbeing, prosperity and resident experience. Structures are often situated at a pinch point (a bridge or tunnel), meaning that their ongoing availability is essential in ensuring the smooth flow of the network. The focus should remain on maintaining the condition of these assets.

Figure 3-9 Structures Condition - Current Funding Level

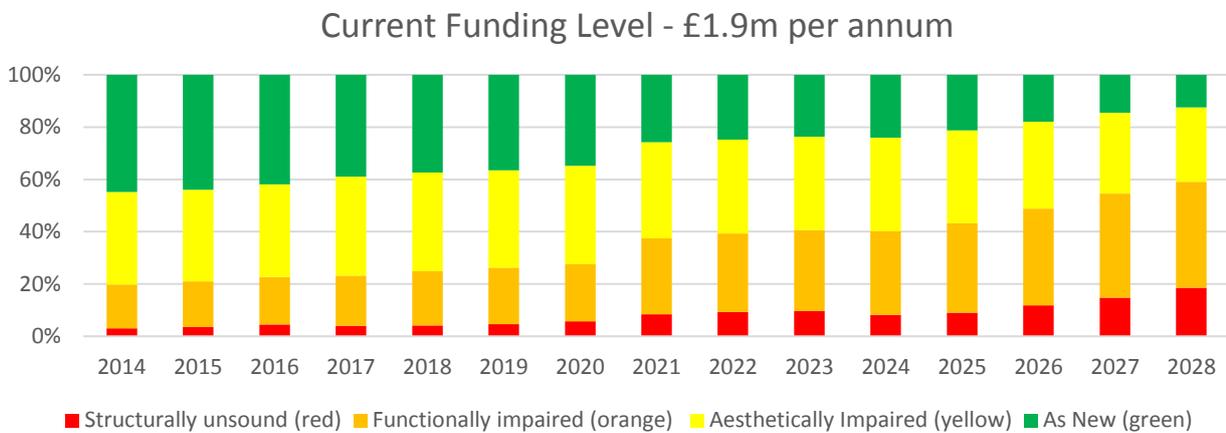
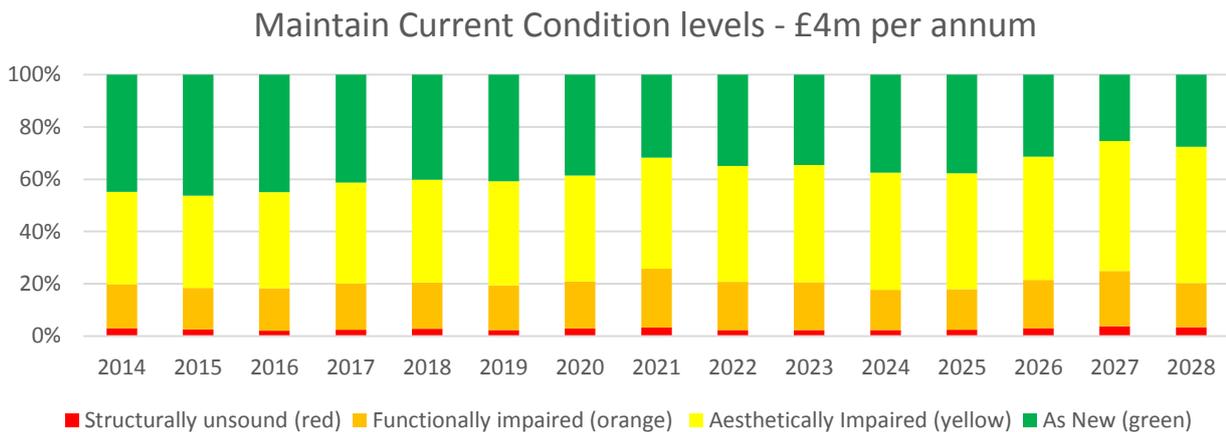


Figure 3-10 Structures – Maintain Current Condition Levels



There is a risk that once remedial work has been undertaken on a structure it is not actively managed until its condition deteriorates again. We will need to ensure an appropriate level of revenue funded maintenance in order to provide value to the residents of Surrey.

3.5. Embankments

Embankments refer to engineered and natural slopes and cuttings made in the landscape to support roads and pavements. Up until now the capital spend has been taken from the structures budget when required, placing additional pressure on the management of the Structures asset and only allowing for a reactive approach to maintenance of embankments. There is now a recognition that we need to treat embankments as a separate asset class.

The chart at figure 3-11 gives an indication of the deterioration of the embankment asset that we could see over a 15 year period and figure 3-12 provides an indication of the cost to maintain embankments in their current condition .

Figure 3-11 Embankments Condition - Current Funding

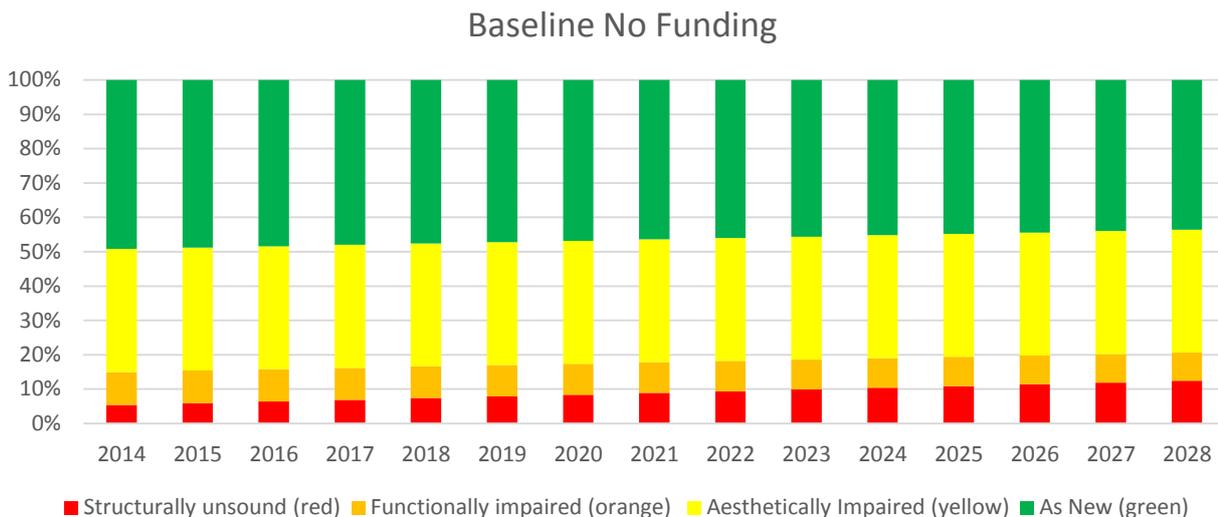
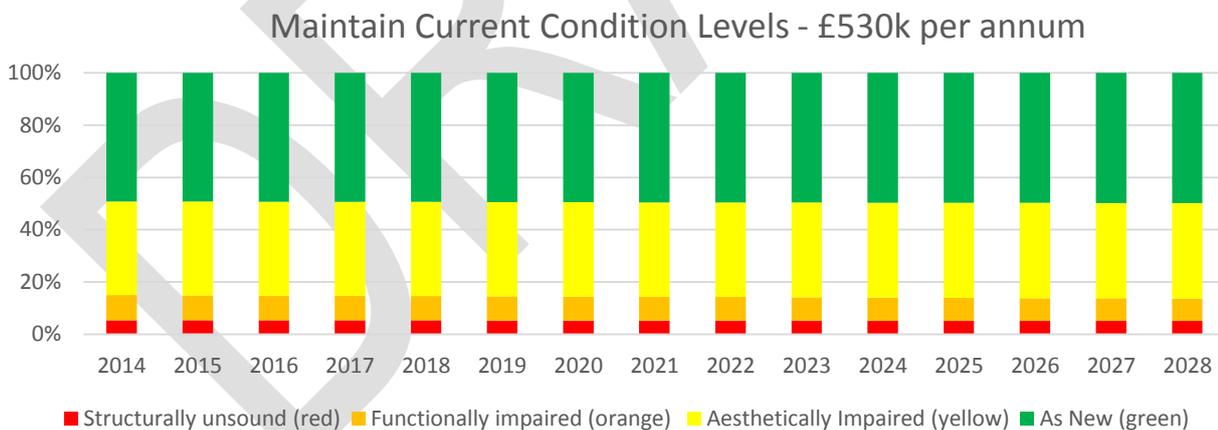


Figure 3-12 Embankments – Maintain Current Condition Levels

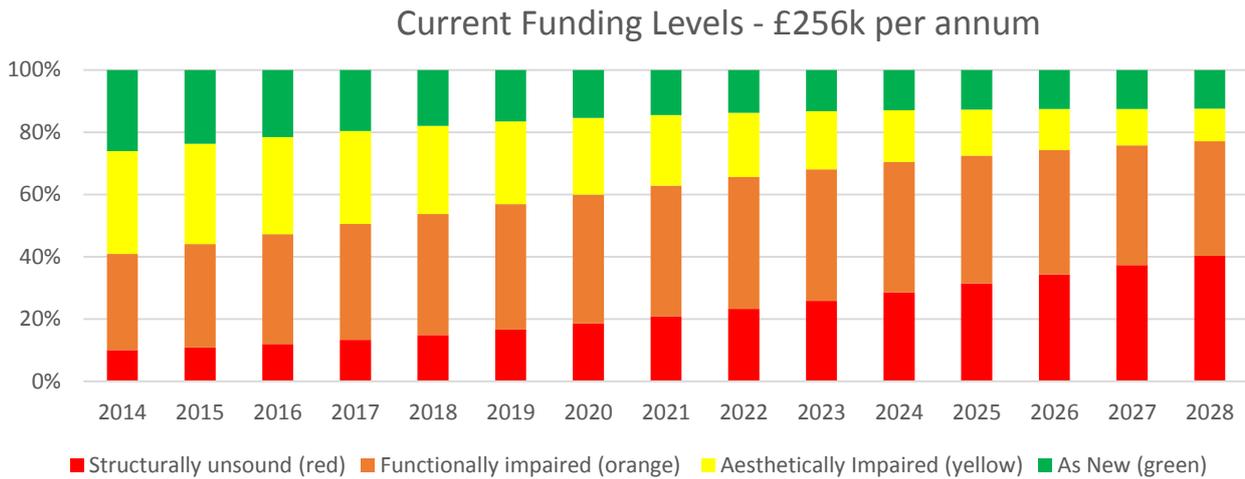


As embankments are a new asset class there is limited data available which specifically refers to embankments as a separate asset in terms of both available condition data and funding requirements. More work will be carried out in future to better understand the condition forecast and funding scenarios to enable use to develop a more planned strategy for managing this asset.

3.6. Safety Barriers

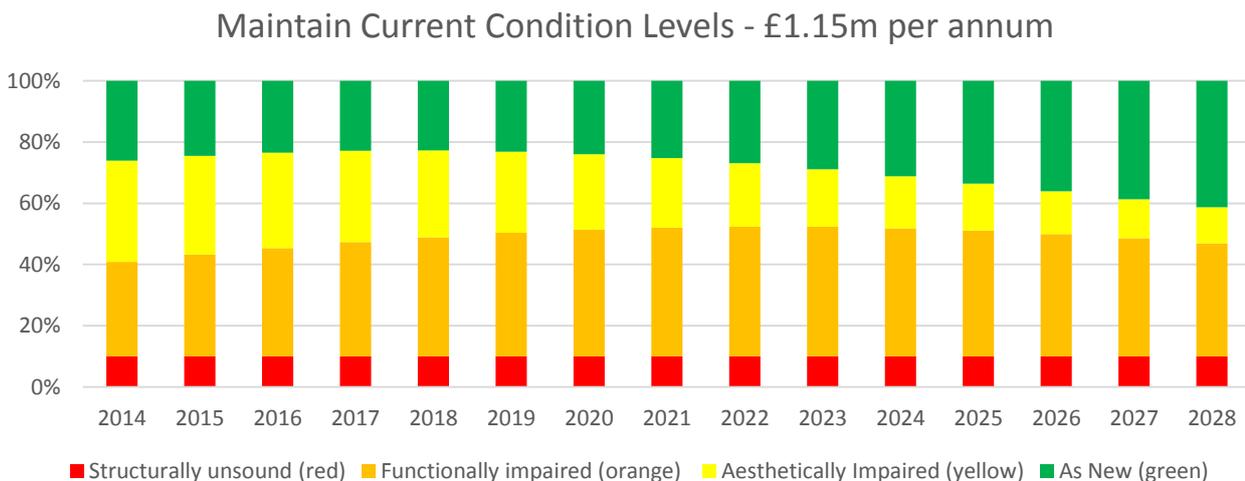
Safety barriers are a vehicle restraint system intended to reduce the number and severity of injuries in the event that a vehicle leaves a road and would otherwise encounter a hazardous feature, protecting both vehicle occupants and features located behind the barrier. As safety barriers are purely for protective purposes in most instances the asset may never need to be used for its intended purpose. We use a bespoke database to model the data. Safety barriers are not seen by road users as a high priority, given that they are only perceived as adding value in the rare instance of a vehicle leaving the road. However, they are important in mitigating the risk of serious injury or death to users of the highways network. Even small increases in funding can have a significant impact on the asset condition.

Figure 3-13 Barriers Condition - Current Funding



As shown in Figure 3-13, current funding levels will lead to a significant decline in the condition of the asset, so an increase in funding will be required. Figure 3-14 indicates the positive impact that an increase in funding can have, with a shortfall of £4.5m identified across 5 years to achieve this outcome.

Figure 3-8 Barriers – Maintain Current Service Levels



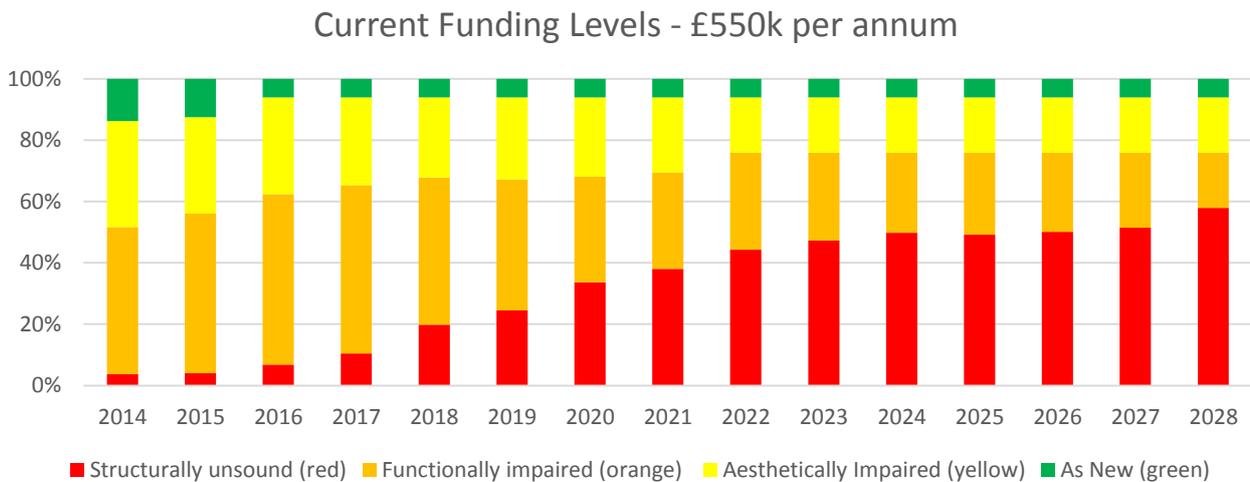
3.7. Traffic Systems

Traffic systems provide traffic control and intelligent information systems to keep traffic moving around the highway network. Traffic systems are essential to maintain the smooth flow of traffic safely around Surrey. We use a bespoke database to model our data. The budget for traffic systems covers a range of equipment, including pedestrian crossings, junctions, variable message signs, rising bollards, bridge height warning signs, fire station wig-wags and car park guidance systems. The condition of the assets is assessed against a number of criteria such as obsolescence, electrical safety, structural safety and the method of control.

Due to their technical complexity and technological focus, traffic systems have by far the shortest life span of all asset types and therefore any reduction in funding leads to rapid deterioration of the assets.

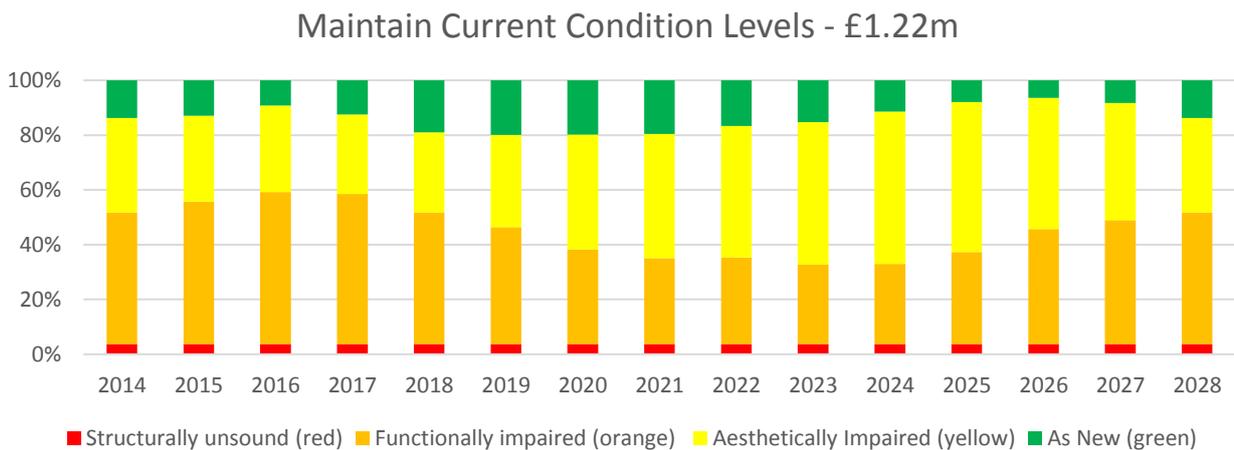
Figure 3-15 indicates that the current level of funding will lead to significant deterioration to the asset over 15 years, with the percentage of the asset in red condition increasing from 4% to 58% over this period.

Figure 3-15 Traffic Systems Condition - Current Funding



Given this shorter lifespan, funding may need to vary year to year to address issues as they arise so we will we will build this principle into our approach.

Figure 3-16 Traffic Systems – Maintain Current Condition Levels



Traffic systems are similar to barriers in the sense that relatively small increases in the annual budget will make a significant impact on the condition of the network over a 15 year period, meaning even a minimal increase in funding will have a significant impact. Traffic systems are vital in keeping traffic moving and reducing congestion, both of which are key factors in meeting our strategic outcomes.

4. Scenarios and Recommendations

In previous sections we have set out what we are aiming to achieve and our approach for doing so. In this section we identify in more detail how we will prioritise investment across the next 15 years.

4.1. Forward Look 15-Year Scenarios

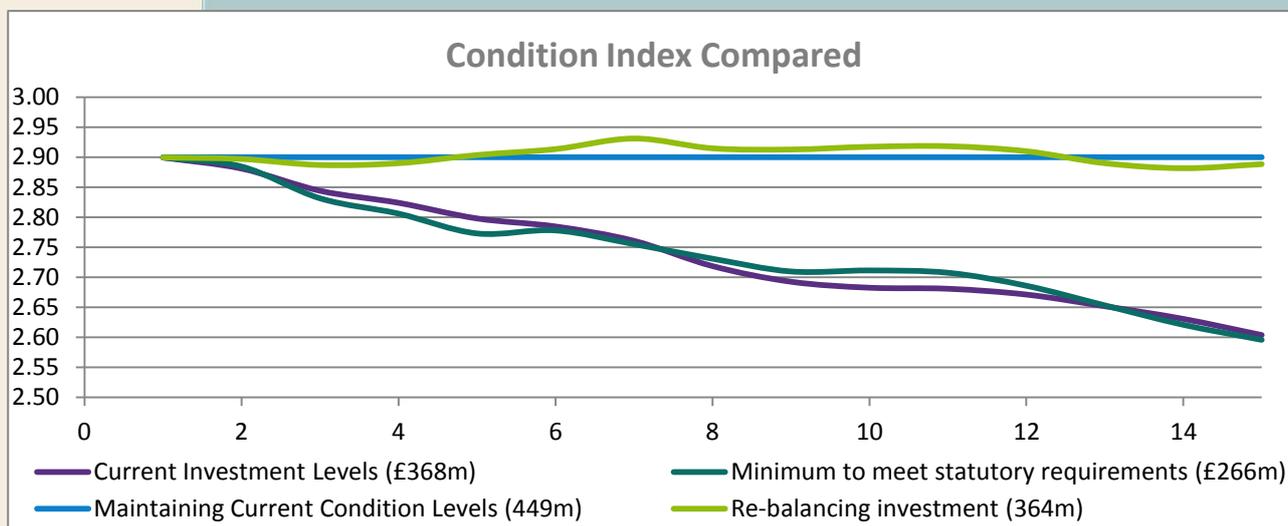
The findings from the analysis in [Section 3](#), as well as the views of users and Members shown in [Section 1.2](#), clearly justify a change in the spend profile across the identified asset types. The previous section has shown that different assets react differently to changes in funding and some require only modest investment to effect a significant improvement in asset condition. The challenge is to balance the needs of our users with the budgetary constraints we are working within and the impact that funding allocations will have on the assets. Figure 4-1 summarises five investment scenarios, where a condition index (CI) has been calculated to indicate the overall condition of each asset type. For example, if the condition for an asset was 100% red (structurally unsound), the CI would be 1, whereas if the asset condition was 100% green (as new), the CI would be 4 – indicating that the higher the CI, the better the condition.

Figure 4-1 Scenario Summary Table

Scenario	Current condition index (CI) exc. Embankments	Overall condition index (CI) - Year 15 exc. Embankments	Overall Spend
Scenario 1 – Current funding Levels	2.90	2.60	£368m
Scenario Two - Minimum to meet statutory requirements		2.59	£266m
Scenario Three – Maintain current condition levels		2.90	£449m
Scenario Four – Rebalanced Funding		2.89	£364m

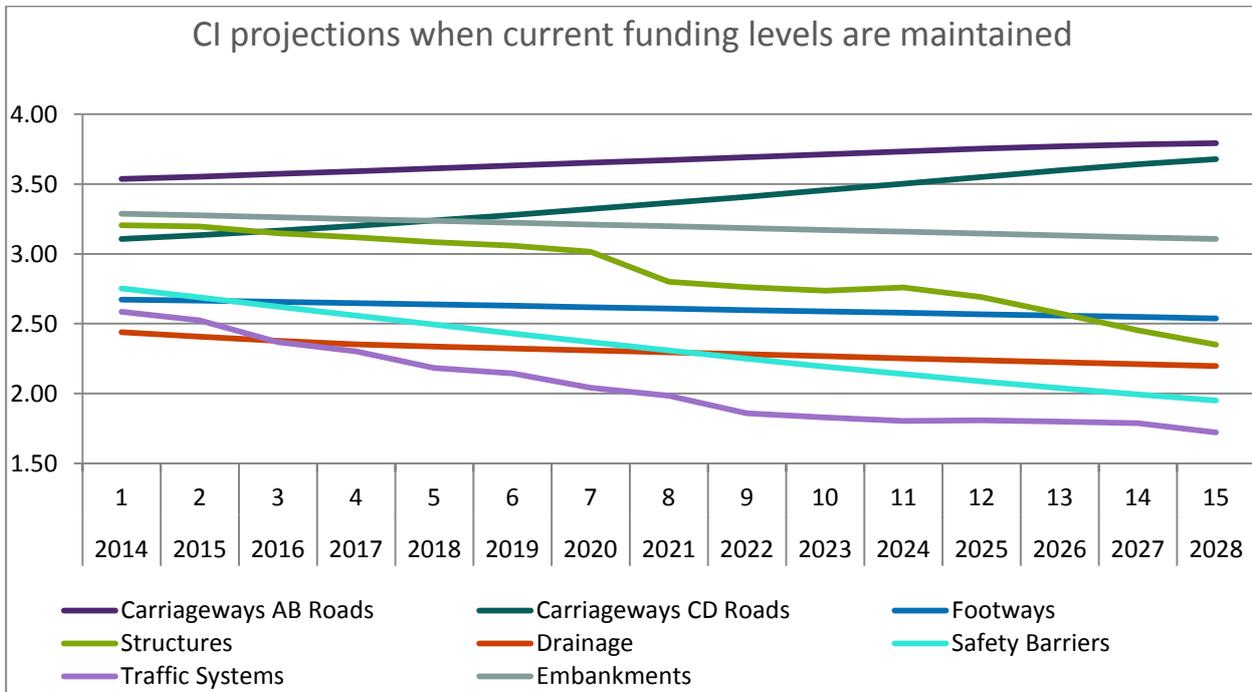
Figure 4-2 shows the different condition index projections over the next 15 years for each scenario, combining each network asset to give an overall view for the network. The cost of each scenario is also shown. A key principle of our approach is to consider the impacts of our decisions across the entire network rather than focusing on assets individually. This allows us to understand the interdependencies between different asset types and how these may be affected by changing funding levels. For example, a higher level of condition for our drainage assets will have a knock on effect in slowing deterioration rates of our roads.

Figure 4-2 Scenario 15 Year Condition and Funding Projections



If the current funding allocations per asset (scenario 1) were to continue unchanged for the next 15 years, we would see a dramatic reduction in the overall condition index of the network. The decrease in the CI from the current figure of 2.90 down to 2.60 is equivalent to over 30% of the network deteriorating down a category, for example from orange (functionally impaired) to red (structurally unsound). In terms of the effect on individual assets figure 4-3 shows that while condition levels on all types of roads would improve over 15 years, the condition of assets such as structures, traffic signals and safety barriers would significantly deteriorate over 15 years.

Figure 4-3 Scenario 1 Current Funding Levels – projected changes to asset CI’s over 15 years



In order to do the minimum to meet statutory requirements, approximately £266m of spending is required across 15 years, an average of around £18m per year. This scenario produces a similar reduction in network condition as maintaining the current asset funding allocations, however the spend in this scenario is not as uniform across the years as scenario 1. In this scenario the initial spend per year would be lower than in scenario 1 but towards the end of the 15 year period would rise higher than scenario 1.

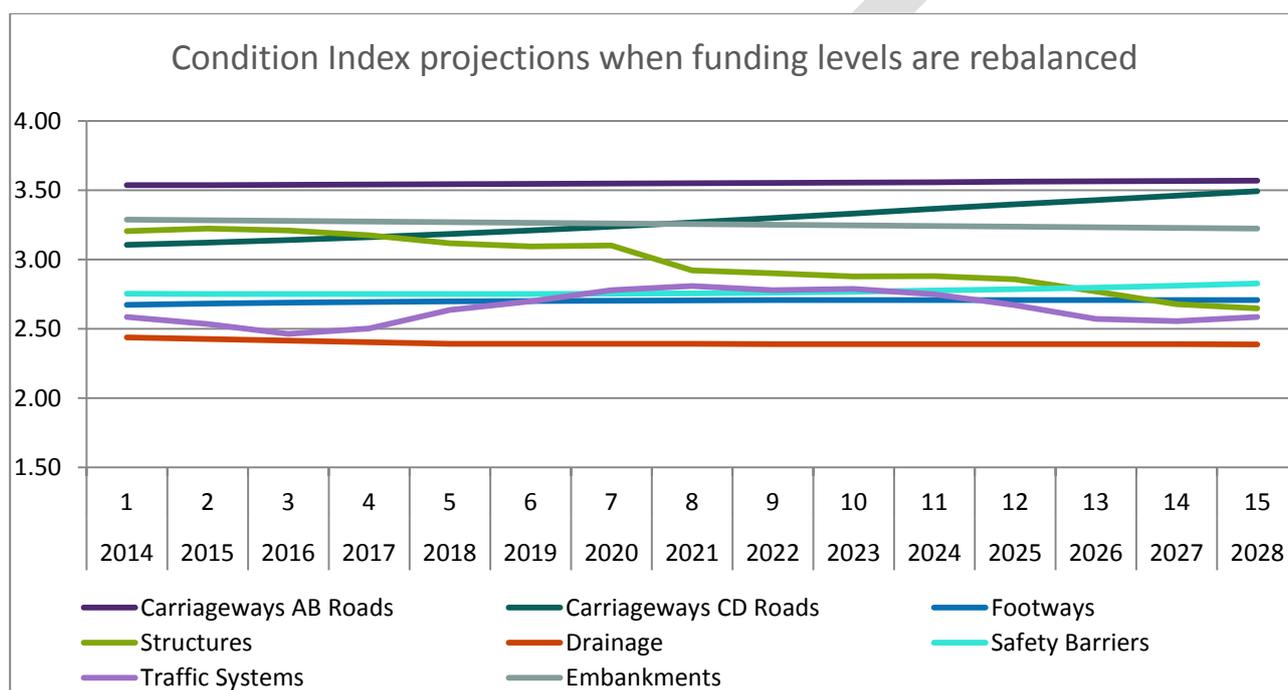
Maintaining current condition levels (preventing the percentage of the asset assessed as structurally unsound from increasing) is listed as Scenario 3, and is the most expensive of the three scenarios at a cost of £449m across 15 years. As with Scenario 2, while in the initial years a level of funding marginally lower than the current budgets will be sufficient to maintain condition, the failure to invest in the maintenance of assets in the short term would cause the budget to increase rapidly each year with an average budget of £30m per annum being required over the 15 year period. By changing the way we allocate funds across the different assets we can proactively manage the network and prevent this high-cost approach being realised.

4.2. Recommendations and Achieving Outcomes

As we have to manage our service within the constraints of the MTFP we have developed a spend profile that makes effective use of existing funding available. This scenario reflects the spending required to maintain the network in its current state rather than improve overall condition, while also avoiding the significant deterioration of the network identified in scenarios 1 and 2 and the increased costs identified in Scenario 3. We are focused on the key priorities of our users, acknowledging work already completed and the current relative condition of each asset.

Figure 4-4 demonstrates that this scenario projects that the condition of most assets will remain fairly stable over a 15 year period. There is clear improvement in the condition of C&D roads, while there is deterioration of condition within the structures asset. Any deterioration will have to be managed by taking a risk based approach to identification of schemes and also considering other sources of funding such as LEP bidding where appropriate.

Figure 4-4 – Condition Levels for proposed scenario – rebalanced funding



We will monitor the performance of our approach to ensure the desired levels of service are being achieved, taking action where necessary to deliver our strategic goals. There are a number of factors included in the investment decisions proposed including:

- Recognising the success of Operation Horizon and forecast improvements in roads, we are reducing our spending slightly. However, we understand the importance to our users, and so we will also be bidding for other sources of funding (e.g. LEP, DfT Challenge fund) in order to carry out larger scale improvements alongside our maintenance programme.
- Both users and Members have identified pavements as key, hence why we are significantly increasing investment in this area;
- Structures clearly need more investment to prevent long-term increases to costs and to minimise the risks of weight & width restrictions, lane closures and bridge closures.
- Traffic signals also emerged as priority for our Members and our users, so we will significantly increase our spending in this area;
- Drainage was identified as a priority by Members, and alongside increasing the spend on highway wetspots we will also be looking at other areas of funding for more significant works for instance LEP Resilience funding.
- Safety Barriers will also benefit from increased funding without it being a significant drain on the overall budget;
- We will develop a better understanding of the requirements for embankments, including a specific budget allocation while our knowledge of the asset increases;

- We will continue to manage our assets to ensure the budget is allocated as effectively as possible, not only to minimise the budget required, but also to minimise costs elsewhere; Focusing on assets that minimise the annual spend on insurance claims as a result of accidents;
- Minimising the risk of the budgets required to meet minimum obligations or maintain service
 - Ensuring that revenue spending is minimised
 - levels spiralling;
 - Impacts to the depreciated value of our assets

The proposed capital budget allocations for 2017/18 onwards are shown in the table below. The proposed capital budget allocations for 2017/18 onwards are shown in the table below. On 22 March 2016 Cabinet agreed to increase highway maintenance spend in 2016/17 by £5m and to make an offsetting reduction to 2017/18, which results in the budget below. In addition, future spend is expected to be supplemented by an allocation from the DfT's "pothole action fund". For 2016/17 this allocation is £1m. In future years we understand from the DfT that funding will be awarded through a competition, rather than formula based, therefore we do not know how much funding we are likely to receive.

An indicative spend per year is shown, however in practice we aim to develop five year programmes of work for each asset within each assets total five year budget allocation. For some assets we may not spend a fifth of their total allocation each year as it may be more efficient and effective to have different sized programmes each year, however over a five year period spend on each asset will be equal to five times the "proposed spend per year" value shown in figure 4-5.



Figure 4-5 Scenario Four – Adjusted Budget

Asset Type	*Pre-17/18 (current) MTFP annual allocations (£m)	Allocation of 17/18 budget based on current split per asset (£m)	2017/18 Proposed (rebalanced) budget allocations (£m)**	* 2018/19 onwards proposed (rebalanced) budget allocations*** (£m)	Total 15 year budget (£m)***	Total spend increase / decrease (%)	Impact to asset
A/B Roads	6.51	4.92	3.21	4.67	69	29% Decrease	Although spending is decreased, overall condition will generally improve – reinforced by recent Operation Horizon investment.
C/D Roads	13.00	9.99	6.65	9.69	142	26% Decrease	Although spending is decreased, overall condition will generally improve – reinforced by recent Operation Horizon investment.
Pavements	1.50	1.60	3.00	3.00	45	100% Increase	Slight decrease in asset condition, although relatively stable due to increased investment. Has been identified as a key priority.
Drainage	0.78	0.78	1.60	1.60	24	105% increase	Asset condition will remain fairly stable based on what is known. Further work required to discover more of the network. Any change in investment is difficult to justify due to the need to treat wet spots.

Asset Type	*Pre-17/18 (current) MTFP annual allocations (£m)	Allocation of 17/18 budget based on current split per asset (£m)	2017/18 Proposed (rebalanced) budget allocations (£m)**	* 2018/19 onwards proposed (rebalanced) budget allocations*** (£m)	Total 15 year budget (£m)***	Total spend increase / decrease (%)	Impact to asset
Structures	1.96	1.96	3.00	3.00	45	53% Increase	A significant increase will slow down asset deterioration. Whilst this will not address all issues it will begin to move the condition of structures towards a more stable base which is easier to manage at a strategic level.
Safety Barriers	0.26	0.26	1.10	1.10	17	323% Increase	Good overall improvement to the asset, allowing increased focus on safety critical barriers.
Traffic Signals	0.55	0.55	1.20	1.20	18	118% Increase	A significant increase will stabilise condition over the next 15 years.
Embankments	0.00	0.00	0.30	0.30	5	N/A	Evidence indicates that proposed spending is broadly appropriate but we will continue to improve our data
TOTAL	24.56	20.06	20.06	24.56	364		
<p>* rebalancing of spend on assets can be shown by comparing spend in these columns ** £5 million was moved from the 2017/18 highways maintenance budget into 2016/17 therefore the 2017/18 budget is reduced by £5 million ***excludes inflation beyond MTFP</p>							

5. Organisational Change and Building the Team to Deliver

In support of our core asset management activities, we will be undertaking a number of internal activities to enable our asset management team to deliver effectively. In using the [Highways and Infrastructure Asset Management Guidance](#) document published by the UK Roads Liaison Group (UKRLG) and the Highways Maintenance Efficiency Programme (HMEP) we have identified a number of opportunities for improvement and will also utilise standards set out in [ISO 55000](#), which identifies key principles to consider in implementing an effective approach to asset management. Our projects and initiatives to deliver this are focused on the following outcomes:

- Creating clear lines of decision making and delegated responsibilities;
- Having a clear and agreed plan in place, with changes justified through a controlled process;
- Measuring performance against a set of benefits and monitoring using detailed and regular KPIs;
- Ensuring the asset management team is linked up effectively to internal and external stakeholders;
- Maximising utility gained from the systems across the organisation.

The service is also undergoing a change programme to ensure it has the capability and skills that supports the delivery of its 5 year Strategic Business Plan. This includes:

- Functional organisational design based on a commissioning approach to create a more outcome based service;
- The development of a Delivery Plan which will set out the detail of what we intend to do to deliver our business plan
- Service wide [performance framework](#) and benefits mapping to evidence the delivery of our business plan and the Council's corporate goals and to drive continuous improvement. Section 6 describes the development of our performance framework in more detail;
- Development of a more efficient and effective works ordering function with clear client and deliverer roles and responsibilities and change control process design;
- External stakeholder mapping and engagement plan;
- Internal communications plan;
- Customer Service Excellence accreditation;
- Development and implementation of our [People Strategy](#);
- Development and implementation of a service wide Quality Management System.

These initiatives support a range of improvement activities identified by the asset team, including (ranked in order in terms of the magnitude of change required):

- Performance – benefits mapping aligned to performance measures and realisation, audit programmes and link to others;
- Investment & Budgeting – Create SLAs, integrate budgets together, base decisions on whole life capital costs, exert more change control, justify decision making, bidding for future funding, asset teams to control budgets;
- Capability – collaboration, flexible and dedicated resource, more control;
- Process – senior engagement, agreement, consistency, link teams together, action list, change control, processes
- Communications – web page, Q&As, workshops, meetings, communicate remits of each team, wider stakeholder engagement, champions of the network,
- AM Systems/Technology – integrate asset systems to link together, records, simple system,
- Policy & Strategy – Allow for changes, define responsibilities, ensure senior support;
- Data – conduct more surveys and actually use the data in decision making.

We conducted a Maturity Assessment with the team to support the identification of these initiatives and identify the key areas of priority for improvement in the short to medium term

6. Performance Management and Governance

The business plan for the service is underpinned by a Performance Management Framework. This sets out a series of performance measures across all our activities which will be used to demonstrate that we are achieving the objectives of the business plan and delivering the Council's corporate goals. It will allow us to identify risks to service delivery and highlight opportunities. Progress against the framework will be scrutinised on a regular basis with quarterly reporting to the Service Leadership Team. Implementing this framework is an ongoing process and we will continue to adapt our approach as we mature.

Included within the framework is a series of measures against the delivery of the asset management strategy. These will be used to monitor our progress against the delivery of the objectives set out in the strategy on a number of levels.

6.1. Performance of our strategy

We will continue to understand the user needs for highways to ensure the strategy is correctly focused, as well as remaining aligned to wider Council and corporate priorities. We will work to prioritise those activities understood to increase public satisfaction, maintain our customer focus and ensuring that everything we do is aligned to the needs of highways users.

We will take an engaging approach to delivering our plans and updating the strategy, ensuring we hear your views before making significant changes. The strategy will be reviewed annually and aligned to the 5 year business plans developed for the service. We will continue to integrate into our thinking information from the NHT survey, customer satisfaction surveys, the customer contact centre and other sources of engagement. By doing so the asset management strategy will remain relevant and aligned to the changing needs of Surrey. Progress will be published on our website and all users will be able to actively engage in the formation of the ongoing strategy.

6.2. Performance of our assets

Using the baseline developed in our asset data, we will develop forecasts for future condition based on the level of investment provided. This will then be reviewed on an annual basis to assess any under- or over-performance for each asset against the needs of the users. Where this is the case, lessons learned will be gathered to understand why this has occurred and suggested activities to either improve the situation or maximise an opportunity with a view to reducing whole life costs of the asset.

This will enable future forecasting to be completed more effectively with a view to improving accuracy in the longer term. Where assets are shown to be consistently underperforming, more detailed diagnostics will be completed to understand why and to develop remedial activities specific to that asset. We will continue to work with partners to identify innovative solutions to these challenges, constantly seeking to increase the value to the residents of Surrey.

There will be monthly works scheduling progress meetings to review the delivery to plan and the updated condition forecasts will be reviewed at board level annually, where changes will be agreed. Any changes to the strategy will also be reflected in adjustments in investment priority.

6.3. Performance of our team

We will seek to continually improve the tools, systems and processes available to each asset team and identify lessons learned as more information becomes available. We will repeat a maturity assessment on an annual basis to assess our level of maturity against our original plan, helping us to set out new or revised improvement activities for the future.

We will work with the asset management teams to help them manage their priorities and to build resilience in their approach when these priorities may conflict with each other. This will also allow for flexibility within the team going forward. The maturity assessment completed will be shared the senior leadership team on an annual basis and there will also be quarterly reviews of progress in delivering organisational change and operational improvement.

6.4. Knowledge sharing and support

Surrey is committed to the development and implementation of good practice and benefits from lessons learnt at National, Regional and Local levels. Officers from Surrey County Council regularly contribute to and attend:

- National and regional conferences;
- The Chartered Institute of Public Finance and Accountancy (CIPFA) Highways Asset Management Planning Network
- SEASIG (South East Area Service Improvement Group) Customer Service Group
- The South East 7 Alliance
- National Traffic Managers Forum
- Annual Local Authority Road Maintenance Survey
- Local Authority Bridges Groups

Furthermore, Surrey is committed to the sharing of knowledge and experiences in implementing asset management with other Highway Authorities across the Country. To this end, officers from Surrey present examples of good practice nationally at workshops and conferences and are active members of many knowledge sharing and improvement forums;

- UK Roads Board
- Road Condition Management Group (SCC Chair)
- HMEP Advocate – our Assistant Director has lead work on improving Client/Contractor/Supplier relationships, and on business change, including the development of a strategic peer review for highway authorities.
- Case study on Asset Data included in UKRLG Highway Infrastructure Asset Management Guidance
- MSc in Highway Engineering – Surrey played a key role in the development of this Brighton University course and provide ongoing input with colleagues leading modules and presenting lectures
- South East Traffic Managers Group (SCC Chair)
- South East Permit Scheme Governance Board (SCC Chair)

7. Programme Planning and Supporting Documentation

In delivering our strategy, we have developed a series of documents that set out how we will allocate funding to target the areas that require the most focus. The documents discussed below support the achievement of this objective and are updated annually to ensure we are adapting to ongoing changes in the condition of our network and the priorities of users.

7.1. Scheme Identification

To ensure capital funds are spent in the most effective way, robust systems for scheme identification and assessment are required. The Capital Prioritisation Policy can be found [here](#). We will make specific decisions on how to utilise the allocated budget using this approach to prioritisation, ensuring that we remain focused on delivering the goals and objectives set out in this strategy.

7.2. Annual Programmes

Surrey's major maintenance is planned in advanced and several programmes have been devised to support our strategic aims to maintain our highways assets. Our annual programme sets out all planned work for the year ahead and provides a baseline against which we can periodically assess performance to ensure we are delivering as required. We have made available our annual programmes on a borough-by-borough basis. Further details on each of these annual programmes can be found [here](#).

7.3. Forward Programmes

Forward programmes look to build greater resilience in to the network, providing a preventative approach to highways asset maintenance. We have taken an innovate approach to plan further in advance than just for the year ahead, setting out a provisional programme across the next five years. This ensures that we are proactive in our approach and can make informed decisions for the future. Of course the programme will be subject to change dependent on how far we are achieving our goals, and being flexible is a key element in delivering our strategy. Further information can be found [here](#).

