Public Rights of Way and Access Service

Asset Management Plan

PROW Asset Management Plan 2018 v1

Contents

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Introduction

The value of the asset based on current replacement costs, for those elements for which the County Council is responsible, is calculated as £108 Million with an annual requirement of £2.4 Million to maintain the asset in a steady state.

The County Council Public Rights of Way and Access Service manages a network of 6900km of Public Rights of Way (PROW) and its associated assets. The PROW network representing 42% of Kent's 15600km public highway network.

PROW are public highways and with few exceptions are publicly maintainable highways. The County Council has a statutory obligation under section 41 of the Highways Act 1980 to maintain the public highway to a standard the meets the requirements of the ordinary traffic of the area at all times of year.

PROW are recorded on the Definitive Map and Statement (DMS). The DMS provides conclusive evidence of the existence alignment and status of PROW. The status of a PROW, footpath, bridleway, restricted byway and byway open to all traffic determines the minimum level of public use that may be made of the PROW and therefore the level of maintenance that may be required.

Our Vision

"To provide a high quality, well maintained network, that is well used and enjoyed. The use of the network will support the Kent economy, encourage active lifestyles and sustainable travel choices and contribute to making Kent a great place to live, work and visit ".

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Our Strategic Outcomes

Our vision reflects the County Council' strategic statement "Increasing Opportunities and Improving Outcomes

The County Council is committed to achieving its vision through three strategic outcomes which provide a simple an effective focus for everything we do.
The effective management of the PROW asset supports the delivery of the County Council's three strategic outcomes:

Children and young people in Kent get the best start in life

Kent communities feel the benefits of economic growth by being in work, healthy and enjoying a good quality life

Older and vulnerable residents are safe and supported with choices to live independently.

The Rights of Way Improvement Plan

Kent County Council has a duty to prepare a Public Rights of Way Improvement Plan (ROWIP) under Section 60 of the Countryside and Rights of Way Act 2000 and to update the plan every 10 years.

The plan assesses the extent to which the PROW network meets the present and likely future need to the public in:

- contributing towards more sustainable development;
- delivering active travel options;
- providing opportunities for exercise, leisure and open-air recreation.

The plan articulates the positive outcomes that a well maintained, accessible PROW network can contribute to the delivery of, particularly:

- Public health, mental health and well-being.
- Sustainable travel choices – particularly on foot and cycle.
- Supporting the rural economy

The PROW and Access Service is committed to delivering the positive outcomes identified in the plan and has looked for innovative ways to improve the PROW network in the face of financial challenges.

Key to the delivery of the positive outcomes set out in the ROWIP is the ability to take informed decisions about the PROW asset and where investment is best made to both comply with the County's statutory obligations and deliver the greatest return in respect of positive outcomes. The PROW and Access Service developed a simple cost benefit analysis tool – The Intelligent Investment Tool - to facilitate informed decision making.

The Public Rights of Way Asset Management Plan

The County Council formally adopted asset management principles for the management of the Public Rights of Way (PROW) network on the 8 February 2008.

This approach has been beneficial in establishing the resources required to meet the County Council's statutory obligations in respect of:

i. maintaining the rights of way network,
ii. identifying priorities for expenditure, and;
iii. allowing procurement decisions and the standards adopted for the asset to be rigorously tested so as to achieve best value.

The adoption of asset management principles provides the framework for stronger, better-informed, strategic maintenance and investment decisions. The asset management plan continues to evolve; areas for further development and improvement are evident and are highlighted.

The purpose of the asset management approach

In adopting an asset management approach the aim of the Public Rights of Way and Access Service (PROWAS) was, put simply, to establish management practices for the PROW network under which the right jobs are carried out at the right time and to the right standard. To achieve this aim and to provide a basis for continued improvement the building blocks of the plan must enable and encourage robust and informed decision-making. This ensures that the decisions taken about maintenance represent best value.

The approach reflects guidance for asset management set out in:

- UK Roads Liaison Group – Highway Infrastructure Asset Management, May 2013.
- UK Roads Liaison Group – Well Maintained Highways 2013 revision,
- Chartered Institute for Public Finance and Accountancy Transportation Assets Infrastructure Code (2013 Addition).

Asset Management Plan Policy

In further developing the asset management plan the PROWAS will seek to meet the following policy objectives:

I. Deliver maintenance programmes that meet the County Council's obligations to maintain PROW.
II. Deliver maintenance programmes that meet the policy objectives of the County Council (reflecting what the public of Kent have told us they want) expressed in the Countryside & Coast Access Improvement Plan (CAIP).
III. Ensure that the PROW asset is fully utilised and is safeguarded for future generations.
IV. Provide consistent service levels.
V. Optimise whole life costs.
VI. Reduce the performance gap on the network (gap between current asset condition and the optimum asset condition).
VII. Secure maximum efficiency from investment.
VIII. Assess new policies, products and materials in line with the objectives of the plan.
IX. Inform risk management decisions in the face of financial constraints.
X. Lower environmental impact.
XI. Ensure compliance with Equality Act requirements.
XII. Facilitate benchmarking.

Asset Management Practice

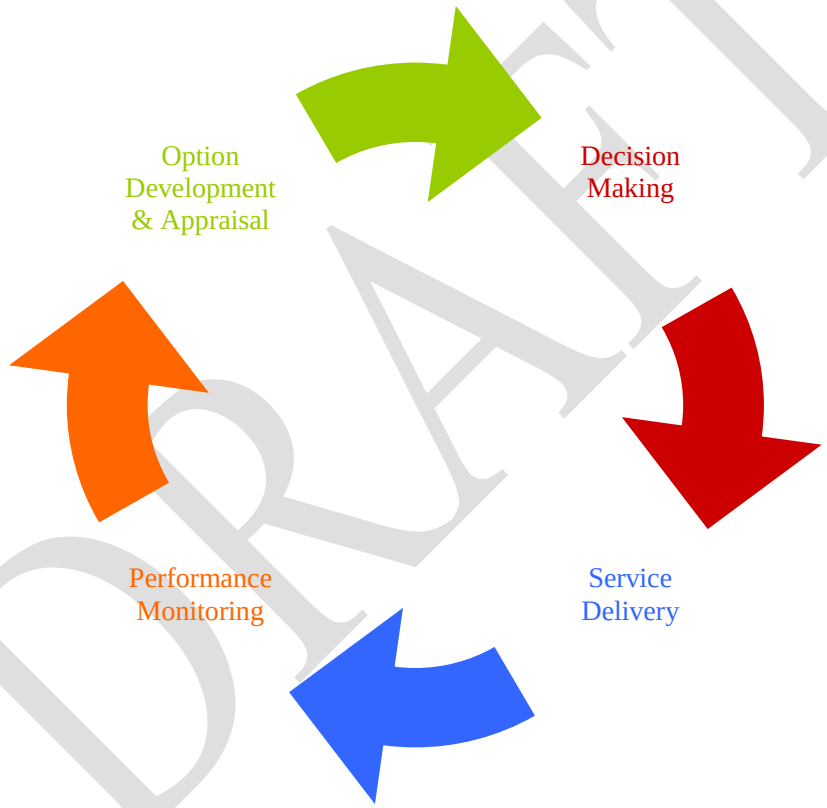
Reflecting the Local Transport Plan asset management practice there are four principal components in good asset management practice:

Option development and appraisal

Decision Making

Service Delivery

Performance monitoring



The process is cyclical and a powerful tool to drive service delivery.

Asset data capture system - CAMS and asset inventory

The PROWAS was in an advantageous position having completed a detailed survey of the entire PROW network 2004-7. This provided an extremely accurate picture of the County's PROW asset down to the precise location and construction of individual structures and furniture items.

The asset information is captured in the Countryside Access Management System database.

The PROWAS has, since 2007, with the exception of some elements of bridges and structures, been reliant on reports from the public, volunteer wardens and PROW officers to gather condition information on the network and to update the asset information. The assumptions made on the basis of such an approach are therefore reliant on a greater level of estimation/ approximation than would be the case if there were a systematic programmed asset inspection.

The asset management plan (AMP), and the position of the PROWAS as a consequence, would be strengthened through establishing a regime of regular network inspection. An ongoing condition survey would provide invaluable information about the condition of asset items. This in turn allows the assumptions on which deterioration, lifespan, whole life costs and modern replacement equivalent costs for the asset may be calculated. There are additional benefits in having a regular inspection regime not least the ability to identify and act on safety issues and the benefits this has in providing a defence in any action against the authority based on a failure to maintain the highway and third party injury claims.

There are items of the asset inventory that, as yet, have not been identified as they are small in number or complex, for instance drainage systems. A regular inspection regime would allow this information to be gathered over time.

In the current financial climate it is simply not viable to establish an inspection regime using employees. The maximum time span for inspection to provide valid asset information would be 18 -24 months. It is calculated that this would equate to approximately 3 x fte at an operational cost of approximately £120K p/a.

Amendments are planned to the existing Countryside Access Warden scheme that could deliver a scheme of inspection at little extra cost; should it prove

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possible to recruit sufficient wardens to achieve comprehensive coverage of the network.

Improved decision-making would be likely to deliver efficiencies that would justify the cost of any inspection regime with the additional benefit in providing a greater level of defence in respect of third party injury claims. Settlements in respect of insurance claims would probably be reduced as a result.

All information gathered on the whole network survey was captured in the Countryside Access Management System (CAMS). All customer reports, officer maintenance activity and volunteer warden activity are captured in the system.

Asset Inventory

The PROW asset principally comprises:

- Stiles
- Kissing gates
- Gates
- Structured gaps and barriers
- Waymark posts
- Fingerposts
- Sleeper bridges
- Kit bridges (timber and steel)
- Bridges and structures
- Benches/ perches
- Aggregate paths (formation and binding or running surface)
- Metalled paths (formation and binding layer)
- Soft estate including some trees (non-aggregate or metalled path surfaces and path margins requiring vegetation control)

There are undoubtedly other elements of the asset that have not, as yet, been accurately recorded such as drainage systems and retaining walls. They are not common place items on the network but could carry a disproportionate financial risk should they fail. Clearly the establishment of a rolling systematic network survey would allow such items to be picked up over time and assumptions developed.

Asset standards and management practices

The PROWAS developed design standards for application across the PROW network (Appendix 1). The design standards principally provide dimensional detail for construction and accessing/ manoeuvring room for users in the vicinity of structures. They do not supply information about the materials to be used or suppliers of materials. The standards should, however, be read in conjunction with the British Standard 5709:2018 that does set down engineering standards for some asset components.

The picture is further complicated in respect of the PROW network in that for some elements of the asset there may be a joint liability, and the level of that liability may vary between the parties, reflecting policy or historic agreement. This is particularly true of stiles and gates that exist for the purposes of land management. KCC liability may vary from a statutory minimum of 25% to a discretionary maximum of 100%. The County Council's policy of least restrictive access tends to drive the Highway Authority liability / contribution towards the upper end of the scale in the case of pedestrian and equestrian gates.

The vast majority of maintenance work on the network is undertaken by contractors operating under small engineering work contracts. This enables labour costs to be relatively accurately determined when calculating the modern replacement equivalent cost of assets. What is not factored in, but is a significant burden whatever approach is taken to maintaining the PROW network, is the cost in staff time of arranging maintenance in comparison to other assets wholly owned by the Country Council and to which there are effectively few management constraints.

Option development and appraisal.

The principal drivers for option appraisal have tended to be the availability of new materials – for instance structural polymers and recycled plastics; fluctuations in the cost and availability of materials; the need to deliver significant budget savings; and amendments to policy such as adopting a policy of least restrictive access.

Central to the identification of work programmes is the Service's use of the Intelligent Investment Tool. This is a simple cost benefit analysis that seeks to identify those schemes most closely aligned to meeting the County Council's statutory obligations and policies.

Asset management considerations are built into the tool. The tool has been found to be robust by Amey in assessing the business case for Local Enterprise Partnership schemes.

Asset Management Calculations

The number of an asset type is taken as being that recorded in CAMS.

In respect of the Modern Replacement Equivalent (MRE) cost for furniture and the annual revenue expenditure to keep the asset in a safe condition and to maximise lifespan, the figures reflect a ‘steady state’ scenario where investment is assumed to have been at appropriate levels consistently for many years and there are therefore no structural peaks in demand. (eg had all kit bridges been constructed in the same year the majority would require replacement in and around the same period creating an increased budget demand at that time).

The reality is unfortunately that the level of investment has been sub-optimal for a considerable period barring a significant drive to improve the condition of the PROW network backed by Government expenditure in the early 1990s. The overall situation is that a significant performance gap exists, compounded by a peak as a result of higher levels of investment in assets at the start of the 1990s that are now reaching the end of their performance life.

Depreciation in line with the CIPFA code is taken as being a straight line.

The deterioration curves for the asset reflect the expected performance on the network as opposed to in ideal conditions.

The deterioration curve plotted is based upon the expected performance of the asset over the lifespan of the asset. The assumptions on which the deterioration has been plotted require considerable refinement.

The asset life-spans assumed reflect the expected performance across the network rather than the expected performance in engineering terms. The life span assumptions reflect the PROWAS experience of actual performance.

Eg: Many metal fingerposts were of a design that should easily have achieved a 30 year life span in engineering terms but because of the constrains on their siting they are vulnerable to vehicle and hedge flail damage. They are also subject to high levels of attrition as a result of deliberate acts of vandalism and theft.

The Service maintains a spreadsheet of asset calculations which are reviewed annually.

Bridges: General Notes

Introduction

The PROWAS bridge asset is complex ranging from the most simple sleeper bridge structures to complex rail bridges requiring engineering expertise and costly interventions.

The general assumptions in respect of the bridge asset while considered accurate for sleeper bridges and simple shorter span kit bridges are clearly less precise in terms of complex structures. The assumptions for complex structures are conservative and informed by the costs incurred in the maintenance of main river structures by the service over the last 10 years. It is important not to lose sight of the fact that in expressing asset management costs on an annual basis that one complex structure such as Estella Road Rail Bridge (pedestrian), were it to fail, would be beyond the means of the service to replace. There are significant risks attached to the bridge asset that could be realised despite the best endeavours of the service.

Inspection regime

A risk based approach is being implemented for the management of structures given that revenue budget levels are not sufficient to meet:

- the cost of bridge inspection in line with the established standard; the Management of Highway Structures Code of Practice 2005.
- interventions that are designed to extend bridge life such as anti-scour works or painting (except when absolutely critical).

The principal risks in respect of a structure failing are: personal injury, loss of public and private access, financial cost in respect of the early replacement of structures that would otherwise last longer, and greater complexity in removing failed structures.

Risk in respect of bridges is a product of:

- span
- height
- construction
- crossing type (eg stream, river, rail).
- condition
- frequency of use
- type of use, including private use
- use by abnormal loads
- changing environment – particularly changes in river channels leading to erosion/ scour.
- and, in respect of Public Rights of Way , the ability of the public to perceive that a structure is unsafe.

Public Rights of Way bridges fall into four broad categories:

- Simple short span timber bridges, typically used for spans up to 3 metres.
- Kit bridges, typically timber but occasionally steel, typically used for spans of less than 12 metres.
- Bridges of up to 18 metres in span, carrying purely public traffic and of a standard design (subject to an AIP).
- Bridges of other constructions, typically concrete and steel, or brick, used for all spans, including greater than 12 metres and often accommodating higher rights users and private users (eg equestrian or vehicle use) with a joint liability.

The approach taken broadly reflects the four categories although exceptions are frequent, particularly in respect of kit bridges and bridges of other constructions.

Sleeper Bridges and board walks.

Number on network 1429: Publicly maintainable.
These structures are of low risk: they are short span, usually low height over ditches and small streams or boggy areas and have low replacement costs[1]. There are no programmed inspections for sleeper bridges. As structures are found to be failing either as a result of public report or ad-hoc inspection they are replaced. Replacement is usually completed as part of the ongoing asset management plan the cost of which is met from capital. The condition of the asset is generally improving as a result of capital investment. There are no significant revenue pressures relating to sleeper bridges.

Kit bridges

Number on the network 1060 (including 15 bridleway bridges): Publicly maintainable.
These structures are generally of low risk although some of the longer bridges may span rivers such as the Tiese and Medway.

Those kit bridges spanning principal watercourses, under the control of the Environment Agency, receive a biennial visual safety inspection.

When first used on the network it was anticipated that kit bridges would have a lifespan of 30 years, they appear to be performing to about this standard. A great proportion of the kit bridge stock was installed between 1990 and 2000, funded through the then Countryside Commission/Agency through its Parish Paths Partnership Programme. A small number of kit bridges are reaching the point of failure and where this is identified they are replaced. As with sleeper bridges the cost of replacement/ provision is met through the asset

[1] Modern replacement equivalent cost £170 per structure (a product of materials and labour cost)

management programme and capital funding.[2] The condition of the asset is generally good however an increasing level of failure can be anticipated in the coming decade as those bridges installed in the early 1990's begin to fail. There are no significant revenue pressures associated with on going maintenance if current funding levels are maintained.

Bridges of other constructions:

Number on network 496. A mixture of publicly, privately and jointly maintainable structures.

Where structures are jointly maintainable or liability is not clear, KCC liability is limited to the costs associated with the provision of a bridge suitable for the public use made of the route.

As a result of an on-going shortfall in revenue funding this element of the bridge stock is declining in condition, as evidenced by the failure of a number of structures and the need to close and / or replace a significant number of structures that have reached the end of their serviceable life as part of an ongoing programme.

Concrete and Steel Bridges:

Included within the bridges of other constructions are concrete and steel bridges. Following the collapse of a concrete and steel construction bridge on Public Footpath WC2 at Horsmonden in March 2012 inspection of a further 19 structures of a similar construction, identified from the County Council's bridges database, was commissioned.

Inspection of the Horsmonden structure had highlighted a number of fundamental issues with the bridge construction, particularly relating to the steel reinforcement within the structure and associated with the casting of the bridge at site. As a direct result of the additional inspections a further two structures were identified that require replacement, one of which was closed immediately, and the other subject to temporary support work until replacement is possible.

However, the 19 additional structures were identified from the County Council's structures database. A further 168 structures of similar construction were identified by the PROW and Access Service from its own asset database. Additionally the 476 bridges of other construction were identified from the database.

Jacobs' Bridge Engineer provided some simple guidance for visual inspection of the additional 168 structures by PROW Officers. All 476 bridges of other construction were visually inspected and where appropriate based on the risks set out above included in the programme. Inspection of these structures

[2] Replacement costs are typically between £226 and £444 per linear metre depending on the type of use to be supported. The modern replacement equivalent cost for a 6 metre timber kit bridge is £2253 (bridge only) –materials plus labour.

was undertaken during the 2013/14 winter. A programme of £300k of urgent replacement work was completed during the 2015/16 financial year with a similar programme identified for 2016/17 and beyond.

Other structures

For the purposes of providing a complete picture it should be noted that in addition to bridges the County Council is also responsible for, or jointly liable for, a number of other substantial structures on the rights of way network, for instance the Maidstone East Station public footpath retaining wall and the Alder Stream bank at Capel. These structures, which could represent significant risk should they fail, all pose similar issues around maintenance and inspection.

Full replacement of structures is less frequent and only occurs where they are failing and can't be economically repaired or have failed. Dependent on design and construction the replacement of specific elements may be feasible. Eg steel and timber structures where timber deck and hand rail elements may be replaced 3 – 4 times over the lifespan of the steel elements.

Inspection Regimes

279 bridges have historically been the subject to biennial visual safety inspection by a bridge inspector/ engineer (including a number of kit bridges). Further ad-hoc inspections are completed in response to specific reports or issues that are identified. The inspection programme identifies revenue and capital works required to replace elements of bridges, or indeed complete structures and revenue funded work to maintain the integrity of structures and to extend their life.

It should be noted that the inspection regime is based on those structures crossing principal watercourses or where they have been identified as being of higher risk. The inspection regime is not comprehensive and currently omits structures that should be subject to regular programmed inspection.

No principal bridge inspections, where every element of the bridge is viewed within touching distance are undertaken. The suggested interval for such inspections is 6 years[3], although given the lower level of risk associated with most public rights of way bridges an interval of 12 years may be more appropriate. A risk assessment supporting the extended inspection period of 12 years for the majority of structures has been undertaken but it should also be noted that without additional revenue funding this standard will not be met.

Where structures fail the costs can be significant[4], setting aside the potential risk to the public, the demolition and removal of failed structures is more

[3] Management of Highway Structures Code of Practice 2005

[4] KCC Bridge management's last valuation exercise placed the cost of a basis footbridge construction at £2200 per square metre of bridge deck and £5500 for vehicle bridges.

complex. Potentially functioning elements, for instance abutments, may be lost as a result.

The current revenue allocation is insufficient to meet the cost of a de-minimis level of inspection under the current code of practice. Potential interventions are not being identified at an appropriate stage to prevent structures from failing. Revenue funding is not currently sufficient to meet the cost of the maintenance work identified to ensure structures remain safe and extend their functioning life. Work is heavily prioritised as a result.

Work to establish an appropriate risk based approach to inspection continues with responsibility for many structures having been clarified with other competent bridge managers (Network Rail, Environment Agency & Highways England).

Number of structures	Inspection type	Cost per structure / average	Projected Annual Cost
279 Current	General - 2 year round	£71	£10180
793 Proposed	General - 2 year round	£71	£28151
To be determined based on risk	Principal at 6 years	£2500	
To be determined on risk.	Principal at 12 years	£2500	
KCC rail footbridge 1	Principal at 6 years	£26000	
KCC rail footbridge 1	Principal at 12 years	£26000	

Table: Annual inspection costs by regime based on 2012/13 costs.

1	Biennial general inspection and 12 yearly principal bridge inspection (all elements of bridge viewed within touching distance). (*Requirement for principal bridge inspection established through assessment during general inspection?*). Current cost £20k for 279 structures = £71 (general safety and record only) Taking only non timber public structures 535 inspections – at the current rate **£18992.** *(535 x £71/2)* Added to which is **£111458** principal bridge inspections. *(535 x 2500 /12)*
2	Biennial general inspection undertaken by bridge engineers. 242 x £71 = 17182 /2 = **£8591**
3	Biennial general inspection only (Issues – liability, risk, cost, value, completion by volunteers)
4	Ad-hoc (in response to reports or when inspected by volunteer surveyors and officers).

Table, potential inspection regimes – numbers indicative only.

Sleeper bridges

Policy considerations and notes

KCC has a policy of least restrictive access.
A three sleeper width bridge is specified for the asset to ensure that the deck width is sufficient for all public users including the ambulant disabled and those with problems with their balance.

Adaptation to climate change: This element of the bridge stock is particularly vulnerable at times of flooding. Bridge anchoring at those sites identified as affected in the Environment Agency 100 flooding event year event map is advocated.

Design standard and general notes.

PROWAS design standard.

Traditionally, railway sleepers have been used for the construction of sleeper bridges. They were of varying quality and of varying performance for that reason. Effective anchors were not used at many locations.

In recent times pressure treated softwood has been used, while more consistent in terms of quality, limitations with timber treatments reduce the lifespan of the asset.

The performance of elements of the bridge and particularly the handrails varies significantly dependent upon soil types.

Assumptions made

The number of sleeper bridges on the network is the number taken from CAMS

The cost of a sleeper bridge is based on the PROWAS standard using three sleepers, pressure treated softwood, dog clipped (heavy metal staples), seated and anchored, with the provision of a pressure treated soft wood handrail. The provision of weld-mesh decks and the use of ground anchors at highly vulnerable sites is not calculated.

A life span of 18 years is anticipated.

The modern replacement equivalent cost is £170 materials, £50 labour. Total £220.

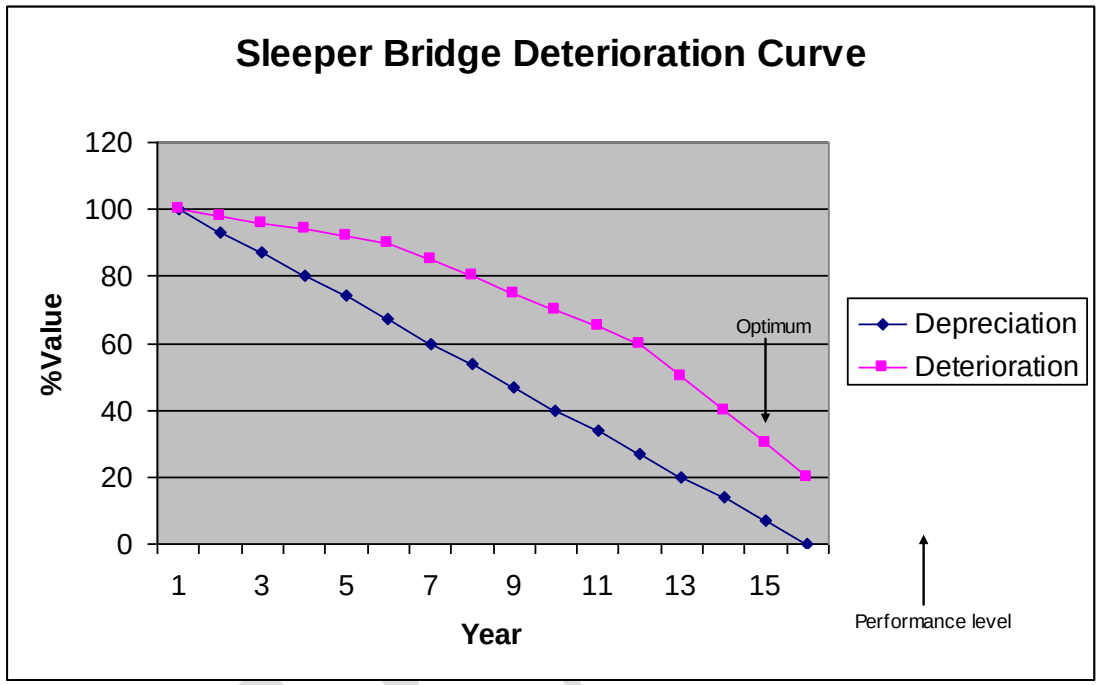
KCC liability is 100% of this figure.

Revenue expenditure from year 1 to 18 is based on an assumption that approximately 20% of the asset will require repair at some point.

The cost of a repair is estimated at £80 labour plus materials. (The most likely repair being the reseating of timbers and the replacement of elements of the handrail).

KCC liability is a 100% of this figure.

Depreciation and Deterioration



The position of the sleeper bridge asset is based upon the picture on the 5 November 2015 in CAMS. In April 2013, 1.9 % of the bridge asset was recorded as out of repair.
The minimum requirement given a lifespan of 15 years is to replace 6.6% of the asset on an annual basis (steady state –stand still).
The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations and position

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
1433	220	315260	100%	17466	1491	Steady state

Future options for appraisal

1. Recycled plastics have been appraised before. While structurally their use is inappropriate they may have a role as seating material.

2. Sweet chestnut is readily available in the County and there is a general lack of a market for the older, larger diameter timber. Research by Jacobs indicates that in terms of structural strength it can out perform treated soft woods. It is also potentially more durable. The PROWAS has to date been unable to source milled chestnut in the right diameters for field evaluation.

3. The use of PVC shrink wrap on the end of timbers to prevent water penetration at the most vulnerable points in contact with the seat.

Kit bridges

Policy considerations and notes

Kent County Council has a policy of least restrictive access. The implication in respect of bridge kits is that they are, as far as is achievable given the site specific constraints, accessible to all. Bridge decks should be of sufficient width to accept the use of mobility vehicles. Where possible bridge decks should be installed so that they are level with the path surface. If this can't be achieved and where use with wheelchairs and mobility vehicles is evident, or would be likely, then ramps should be installed.

Adaptation to climate change: Kit bridges are high value assets with a relatively long life span. They are potentially vulnerable to flooding and therefore should be anchored using ground anchors.

Environment Agency consents: Consent is required for main water courses. All other crossings should be installed bank top to bank top so as not to interfere with or adversely affect drainage.

Design standard and general notes

PROWAS design standard. Euro code 5 - EN1995 passing and re-passing on a timber structure – 5 KN/ metre2.

The kit bridge asset is difficult to evaluate as construction varies dependent on length and use. For the purposes of asset management the kit bridge stock is split as footbridges and equestrian bridges and different values are therefore placed on each.

In the early 1990's the kits purchased had main beams of highly durable but environmentally questionable tropical hardwoods. Pressure treated softwoods have been used since that time. A 30 year lifespan for kit bridges was anticipated when first used on the network. They appear to be performing to that standard. Changes to timber treatments may shorten asset life in the future.

Assumptions made

The number of kit bridges on the network is the number taken from CAMS applying filters to separate 'footbridge - wood' and 'footbridge- public bridleway -wood'.

The cost of a kit bridge is based on the PROWAS standard and Euro code 5.

A six metre length is assumed as the average structure span.

All structures are assumed to be anchored using ground anchors or bolted to abutments.

A life span of 30 years is anticipated.

The modern replacement equivalent cost is:

Footpath: 6m @ £316/m + £100 (bridge seat frame) = £2000 + £565 labour = £2565

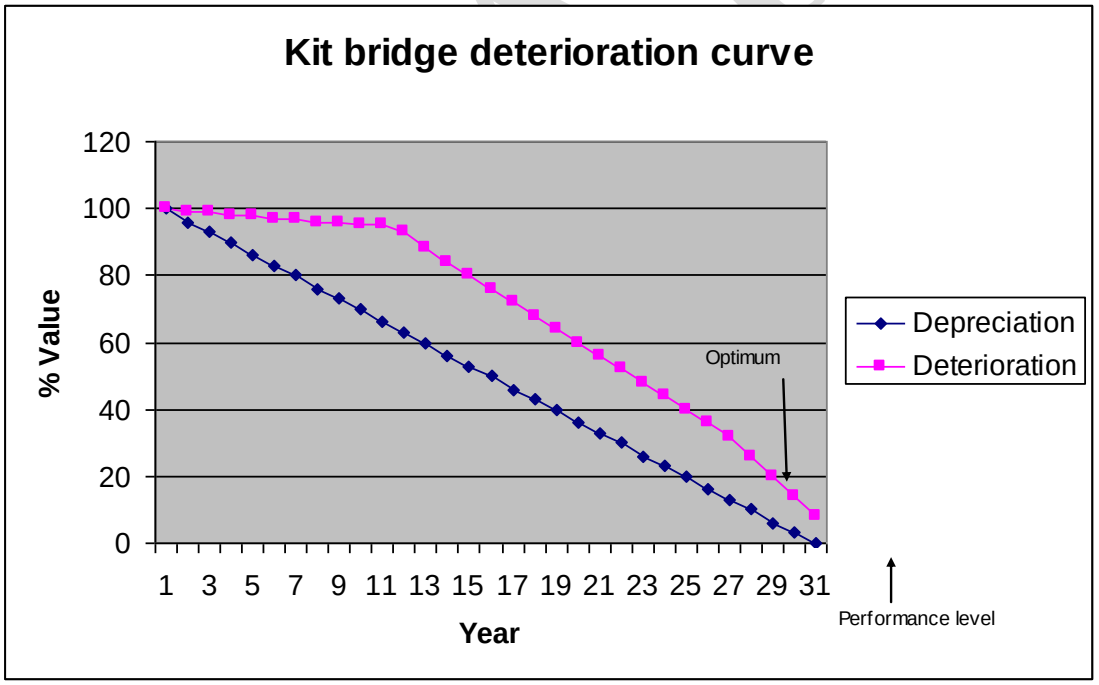
Bridleway: 6m @ £583/m = £3500 + £565 labour = £4065

KCC liability is 100% of this figure

Revenue expenditure from year 1 to 30 is based on an assumption that approximately 30% of the asset will require repair at some point.
The cost of a repair is estimated at £100 labour plus materials. (The most likely repair being the reseating of the bridge or replacement of handrails or deck planks) .

KCC liability is a 100% of this figure.

<u>Depreciation and deterioration</u>



The position of the bridge asset is based upon the picture in CAMS on the 5 November 2015. 1.9% of the bridge asset was considered out of repair.
The minimum requirement, given a lifespan of 30 years, is to replace 3.3% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Pedestrian bridges

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
1034	2565	2680425	100%	88407	1034	Steady state*

*While currently in a steady state this is an element of the asset where heavy investment occurred in the early 1990 and will be at the end of its expected lifespan in the period 2020 – 2030. A move to amber – sub-optimal is expected.

Bridleway bridges

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
16	4065	60975	100%	2168	16	Steady state*

Future options for appraisal

1. The impact on timber treatment changes may have on asset life.

2. Sweet chestnut is readily available in the County and there is a general lack of a market for the older, larger diameter timber. Research by AMEY indicates that, in terms of structural strength, it can out perform soft woods. It is also potentially more durable. A number of bridge components and sleeper bridge lengths of timber should be sourced for field evaluation.

3. Refine assumptions based on average span and overall bridge length to produce a more accurate cost.

4. Evaluate the whole life costs of composite bridges against existing designs.

5. Consider composite access ramps at bridge ends to improve accessibility and minimise impact on landuse

Bridges - other constructions:

Policy considerations and notes

Kent County Council has a policy of least restrictive access. The implication in respect of bridges is that they are, as far as is achievable given the site specific constraints, accessible to all. Bridge decks should be of sufficient width to accept the use of mobility vehicles. Where possible bridge decks should be installed so that they are level with the path surface. If this can't be achieved and where use with wheelchairs and mobility vehicles is evident, or would be likely, then ramps should be installed.

Adaptation to climate change: Bridges are high value assets with a relatively long life span. They are potentially vulnerable to flooding and therefore should be anchored using ground anchors.

Environment Agency consents. Consent is required for main water courses. On all other watercourses bridges should be installed bank top to bank top so as not to interfere with or adversely affect drainage.

In some instances there is joint liability for bridges and contributions are sought from landowners etc towards maintenance costs. Where contributions are made these have been in line with the cost to the County Council of providing a kit bridge of the same span: IE the liability of the County Council to provide a bridge for only the public access should a new structure be required.

Design standard and general notes (See general bridge notes)

PROWAS design standard. Euro code 5 - EN1995 passing and re-passing on a timber structure – 5 KN/ metre2.
Bespoke designs and design appraisal advice is available from the Structures Team and AMEY. Approval In Principle has been sought for a suite of generic PROW bridge designs.

Assumptions made

The number of bridges on the network is the number taken from CAMS applying filters to separate all non- timber structures by status and by category of span.

The MRE cost of a bridge is calculated on the basis of Bridge Management's last valuation exercise that priced the cost of construction at £2200 per square metre of bridge deck for footbridges and £5500 for road bridges.
For the purposes of PROW constructions the lower figure £2200 is used irrespective of user type reflecting the generally lower performance requirements of PROW bridges, and the joint liability in respect of many vehicle bridges.

A width of 1 metre is applied for footbridges.

A width of 2 metres is applied for bridleway bridges

A width of 4 metres is applied for all other bridges reflecting vehicular use.

KCC liability is applied at:

80% for footbridges. This is on the basis that a greater proportion of the liability is liable to rest with KCC with many of the structures wholly maintainable by KCC.
50% for bridle bridges as there is a greater likelihood that these structures will carry additional private use.
20% This is on the basis that many of the more complex structures are of shared liability and, in many cases, the option exists not to replace like with like but to install simpler constructions.

A life span of 40 years is anticipated. Structures, or elements of them, will in many cases far exceed this lifespan. Although fully depreciated at this point there will be high residual value.

Revenue expenditure from year 1 to 40 is based on an assumption that approximately 50% of the asset will require repair at some point.
The cost of a repair is estimated at £1000 labour plus materials. The most likely repair being the reseating of a bridge or replacement of handrails and painting, pointing, anti scour works etc.

Repairs and interventions given the potential lifespan of the asset are more likely to occur and may continue well beyond the initial design life. The interventions aimed at prolonging the life of the asset such as: painting, parapet reconstruction, anti-scour, re-decking are invariably expensive and can have high establishment costs eg scaffolding.

KCC liability is a 100% of this figure.

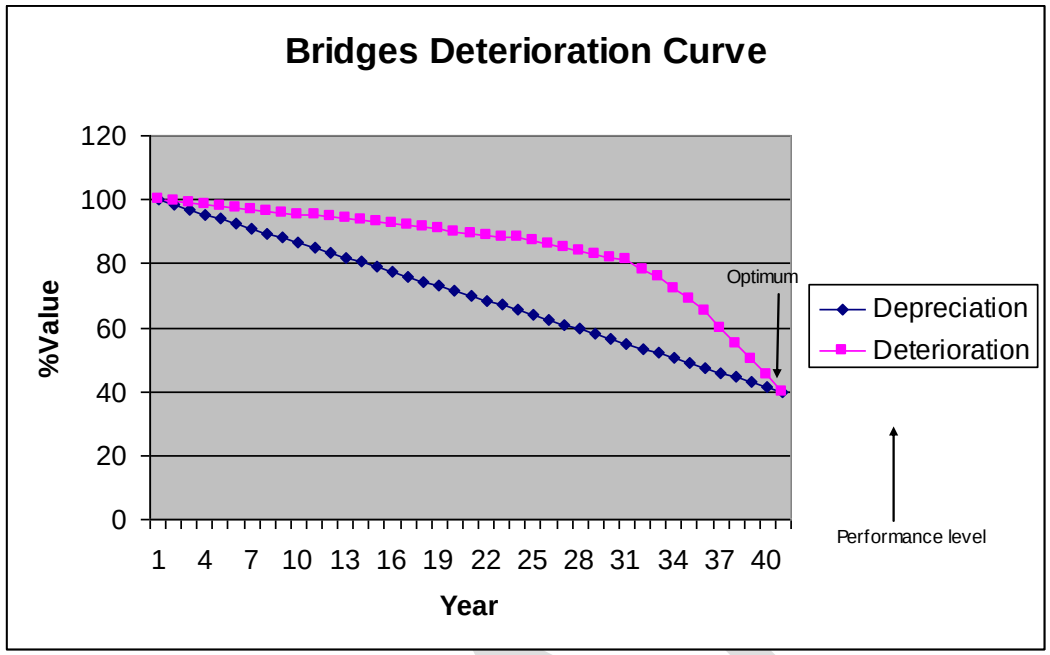
Culverts are valued at £3000 reflecting the installation of 1m diameter 3m length reinforced concrete pipe and the construction of simple lean-mix filled bags – headwalls.
No intervention is anticipated post construction.

KCC liability is assumed as being 20%.

<u>Depreciation and deterioration</u>

The position of the bridge asset is based upon the picture in CAMS on the 5 November 2015. **1.9%** of the bridge asset was considered out of repair.
The minimum requirement given a lifespan of 40 years is to replace 2.5% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.



Underwater inspection in progress, SR497 Penshurst

Bridge Type	Span Range (metres) (span on which the MRE is based is the top of the span range unless stated in brackets)	Number	Modern Replacement Equivalent £ (Excludes heritage value) At £2200 / m square of deck) Vehicle 4 m width Bridleway 2m width Footpath 1 m width	KCC Liability	KCC liability (annual)	Current Asset Position
Vehicular Restricted Byway & BOAT *	3-6 (6)	115	£6,072,000	£1,214,400	**£31,798**	Sub-optimal
	6-9 (7.5)	63	£4,158,000	£831,600	**£21,578**	Sub-optimal
	9-12 (10.5)	18	£1,663,200	£332,640	**£8,541**	Sub-optimal
	12+ (12)	52	£5,491,200	£1,098,240	**£28,106**	Sub-optimal
Bridleway* (non timber)	3-6	4	£79,200	£39,600	**£1,028**	Sub-optimal
	6-9	0	£0	£19,800	**£508**	Sub-optimal
	9-12	0	£0	£26,400	**£673**	Sub-optimal
	12+	8	£422,400	£211,200	**£5,380**	Sub-optimal
Footbridges (non-Timber)**	3-6	106	£1,119,360	£279,840	**£29,309**	Sub-optimal
	6-9	51	£807,840	£201,960	**£20,834**	Sub-optimal
	9-12 (10.5)	28	£517,440	£129,360	**£13,286**	Sub-optimal
	12+	69*	£1,457,280	£533,280	**£37,295**	Sub-optimal
Culverts*	N/A	64	£144,000	£28,800		Sub-optimal
Total		595			**£198333**	

*Includes only those that are KCC or have no identified bridge owner.
** Includes only those that are KCC or have no identified bridge owner. (The number of longer span bridges has been reduced by101 to 69 to reflect the fact that the longer span bridges have an identified bridge owner).

Sub-optimal assessment: There has been increased investment in the bridge asset in recent years. Failing concrete structures have been replaced. A risk based inspection regime has been implemented but is yet to provide a comprehensive picture of asset condition. The assessment reflects the fact that there are many structures on the PRoW network for which the County Council is not responsible or has only partial responsibility. Not all of the bridges are managed by “competent bridge managers” such as Highways England or Network Rail. Many farm accommodation bridges are substandard.

Asset valuation and calculations

Revenue expenditure (50% of asset over years 1 – 40) i.e. 1.3% of asset per annum) at a cost of £1000.

KCC liability at 100% = £6838

Total annual liability = £6838

Bridges total annual liability = **£198333***

* *This reflects a steady state scenario where level has been at the appropriate level without any peaks in investment or under investment. Unfortunately this is not the case and a significant performance gap exists for the bridge asset. Bridges of concrete and steel construction dating from the 1960s and 70s are of particular concern.*

Future options appraisal

1. The assumptions made about bridges of more complex construction need refining to reflect ownership and the County Council's liability for maintenance or a contribution to maintenance.

2. Other structures requiring maintenance need to be better defined to fully understand the County Council's exposure to risk.

3. The replacement of multi span structures as opposed to single span structures supported by piers may provide savings on inspection costs as well as making future maintenance easier.

Greater costs are undoubtedly associated with the failure of an asset than with appropriate maintenance interventions

Aggregate paths:

Policy considerations and notes

With very few exceptions the public rights of way making up the 6900km network in Kent are publicly maintainable.

- The maintenance picture is complex unlike the greater highway network: Some routes are subject to private vehicular rights
- Substantial proportions of the network cross agricultural land, may be subject to cultivation, and effectively require no maintenance to their surfaces.

Adequate surfaces for public use exist across the majority of the network, many of them vegetated and demanding regular maintenance. The County Council's statutory obligation is to maintain the highway to a standard suitable for the use of the permitted and expected traffic at all times of year taking account of the needs of the blind and disabled.

On the basis of case law the PROWAS will consider a right of way to be in repair if:

- There is no unreasonable interference with the rights of the person using the right of way.
- It is safe and fit for ordinary traffic at all times of year.
- The full width of the highway is available for the public to enjoy.
- The level of repair has adjusted over time to meet the needs of current use.
- It is adequately drained.
- It is free from trips (not necessarily free from shallow depressions, sometimes water filled) so far as this is possible reflecting local geology/ geography eg, downland terracettes.
- It reflects the character of the area and the land use of the area.

Given the level of use of the network, particularly those routes carrying equestrian and vehicle rights, an increasing number of routes have been provided with more resilient surfaces in recent times.

Prior consents are required for schemes passing across or through SSSI or Scheduled Ancient Monuments. There may be a requirement to secure planning consent where new routes are being constructed.

To reduce the environmental impact of schemes appropriate recycled materials are incorporated into specifications, particularly the use of recycled concrete as sub-grade and crushed road planings as a surfacing medium.

Adaptation to climate change: A greater number of flooding events and a greater frequency of heavy rainfall may be expected. This combined with greater equestrian/ vehicle use of the bridleway / restricted byway and byway network appear to be resulting in increased levels of erosion, particularly where routes run down slope on chalk scarp. Routes with a gradient of less than 15% are prioritised over those that are steeper given that a resilient solution providing a reasonable lifespan that is compatible with public use has not been found for the steeper gullied routes.

All schemes are prioritised using the Intelligent Investment Tool a simple cost benefit analysis designed to ensure that the schemes selected for the maintenance programme are those that most closely meet the County Council's statutory obligations and objectives.

Design standards and general notes.

PROWAS design standard: PROWAS has adopted the guidance and specifications as set out in - On the right track surfacing standards for shared use routes.

Consideration should be given to the aesthetic impact of constructions with reference to the PROWAS Design Manual with particular focus on the use of blinding layers/ wearing courses that are appropriate to the setting.

Where routes are subject to private vehicular use a contribution to maintenance is sought (or demanded) from those exercising the private access. Any contribution made by the County Council is limited to that necessary to fulfil KCC's obligations and reflects the wear and tear made to the path from the private use – likely to be the greater proportion.

Assumptions made

The length of PROW with aggregate surfaces is as extracted from CAMS.

A width of 2.5 metres is assumed for all aggregate paths.

A 20 year depreciation is assumed, with a high residual value.

A 20 year lifespan is assumed for the asset but with a high residual value it is also assumed that 40 years serviceable life will be achieved on routes that are level and well drained.

The modern replacement equivalent cost of an aggregate path is based upon the most recent pricing data from tenders at £15/m².

KCC liability is 100% of this figure

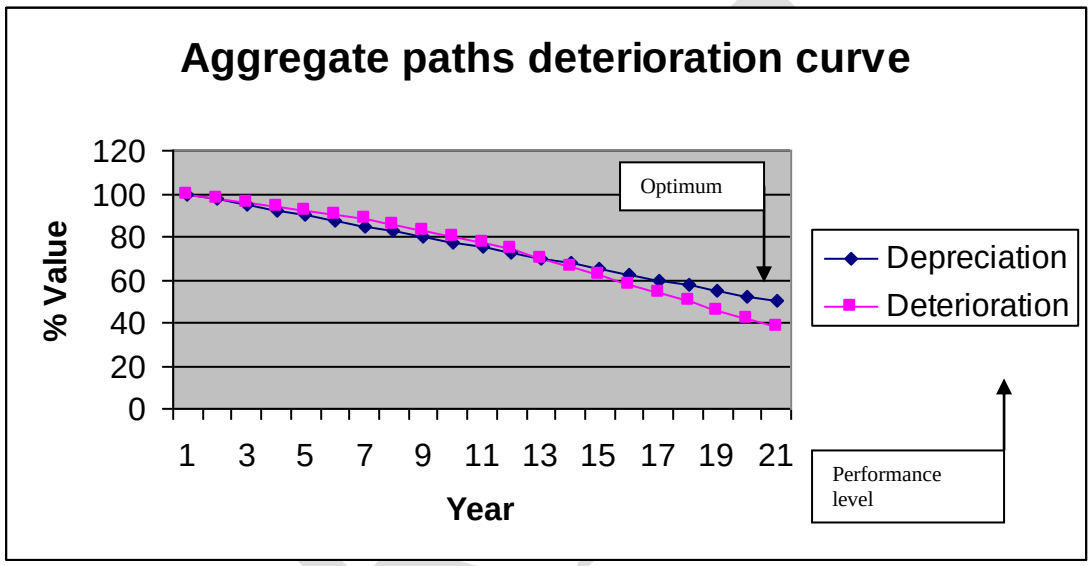
Revenue expenditure from year 1 to 20 is based on an assumption that approximately 1% of the asset will require repair at some point.

The cost of a repair is estimated at £15m2.

KCC liability is a 100% of this figure.

Repair/ reconstruction beyond the 20 year horizon for years 20-40 is also calculated on the basis of 30% of the asset per annum requiring repair. IE 1.5% of the asset per annum.

Depreciation and deterioration



The position of the aggregate path asset is based upon the picture as recorded in CAMS on the 1st April 2013. 2.2 % of the surfaced path asset was recorded as out of repair.
The minimum requirement, given a lifespan of 20 years with high residual value, is to resurface a minimum of 2.5% of the asset on an annual basis (steady state –stand still).
The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset quantity m2	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
1029800	15/m2	15477000	100%	386175	154470	Declining

Future options appraisal

1. Exploration of systems to halt or slow the degradation of sunken scarp paths to acceptable levels.

2. Development of maintenance approach that extends the asset life particularly drainage.

Metalled paths:

Policy considerations and notes

Paths tend to be metalled where heavily used, primarily in urban areas and village centres. Higher levels of use and a reasonable expectation that metalled paths should be in a fit condition place a greater burden on the highway authority in terms of maintenance.

There are very clear standards, established through third party claims actions, for what constitutes a trip in the context of metalled routes. 20mm – 25mm is considered a trip by the Courts although there is some leeway dependent on context.

Design standards and general notes

PROWAS design standard : PROWAS has adopted the guidance and specifications as set out in “On the right track surfacing standards for shared use routes”.

Consideration should be given to the aesthetic impact of constructions, with reference to the PROWAS Design Manual, with particular focus on the use of blinding layers/ wearing courses that are appropriate to the setting.

Where routes are subject to private vehicular use and a contribution to maintenance is sought (or demanded) by those exercising the private access, any contribution must be limited to that necessary to fulfil KCC’s obligations and reflecting the wear and tear to the path from the private use – likely to be the greater proportion.

The taking back of agency agreements for the urban areas of Kent in 2001 and the mapping of the previously excluded areas, which were all urban in nature, has resulted in significant growth in the length of the metalled route asset. The condition of that asset when inherited was generally poor and towards or beyond the end of its asset life. This probably reflected low priority being given to such routes.

The use of thin surfacing treatments and particularly surface dressing has generally not proved effective in extending asset life many of the routes having reached a point at which reconstruction is the most effective approach.

Assumptions made

The length of PROW with a metalled surface is: **735202m.**

A width of 1.5 metres is assumed for all metalled paths.

A 40 year depreciation is assumed with a high residual value.

A 50 year lifespan is assumed for the asset. This is an optimistic assumption.

The modern replacement equivalent cost of an aggregate path is based upon the most recent pricing data from tenders at £55/ m² full construction including edging.

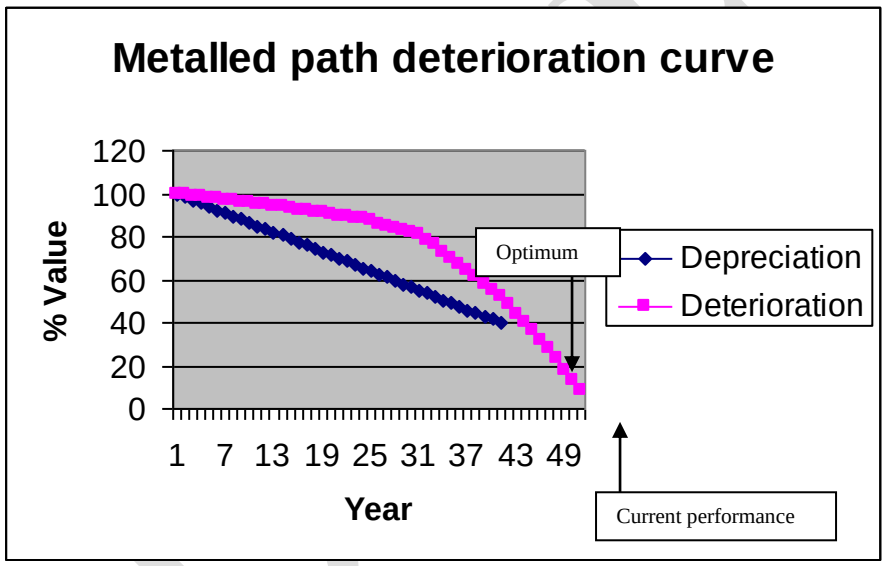
KCC liability is 100% of this figure.

Revenue expenditure from year 1 to 40 is based on an assumption that approximately 10% of the asset will require repair at some point. The repair is generally patching with a 10mm dbm overlay.

The cost of a repair is estimated at £25 m².

KCC liability is a 100% of this figure.

Deterioration and depreciation



The position of the metalled path asset is based on the current picture in CAMS on the 5 November 2015. 2.2% of the asset is reported as being out of repair.
The minimum requirement, given a lifespan of 50 years, is to replace 2% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset quantity m2	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
1102803	55/m2	60654165	100%	1213083	137850	Declining

Future options appraisal

The use of thin surfacing to extend the effective life of the asset should be evaluated.

Fingerposts:

Policy considerations and notes

There is a requirement to signpost all PROW where they meet public roads. Discretion may be exercised not to signpost routes at the request of a Parish Council. This discretion should not be exercised in rural locations but may be appropriate in an urban/ village centre context where there can be no doubt as to the fact that the route is public and its destination is equally obvious.

Design standard and general notes

PROWAS design standard.

A number of designs of signposts have been used on the PROW network over the last 30+ years. Sign stones were used up until the mid 1980's but were phased out as they were quickly concealed by low vegetation and generally didn't indicate the direction of routes.

Large metal fingers and grey posts were used up until approximately 1994 at which time design was changed, following a report to the Environmental sub-committee. The replacement design was small metal fingers and black posts, the fingers indicating the status of the route but omitting the word public. A timber option (green oak) with rebated finger was also made available at this time and was widely used in some parishes. Since 2002 the PROWAS has used timber posts (4 way weathered top – pressure treated soft wood, or green oak) and UPVC fingers. Metal posts may be used where existing posts are still serviceable or at vulnerable locations.

Finger design has evolved to incorporate symbols and a coloured chevron corresponding to the path status.

The design of North Downs Way fingerposts in seasoned oak with a high quality finish have a far higher cost and so are subject to a separate set of assumptions and calculation.

Assumptions made

The number of fingerposts on the network is the number taken from CAMS(metal, wood, milestone)

The cost of a fingerpost is based on the use of a green oak post and UPVC finger.

A life span of 20 years is anticipated.

The modern replacement equivalent cost is £26 materials, £70 labour. Total £96.

KCC liability is 100% of this figure.

Revenue expenditure from year 1 to 20 is based on an assumption that approximately 40% of the asset will require repair at some point.
The cost of a repair is estimated at £35 labour plus materials. (The most likely repair being the replacement of a finger and or re-siting of a post reinstallation of posts).

KCC liability is a 100% of this figure.

North Downs Way (NDW)

The number of fingerposts on the NDW is the number taken from CAMS

The cost of a fingerpost is based on the use of an Oak post and rebated oak finger.

A life span of 20 years is anticipated.

The modern replacement equivalent cost is £305 materials & £70 labour. Total £375

KCC liability is 25 %, Natural England grant aid the remaining 75%.

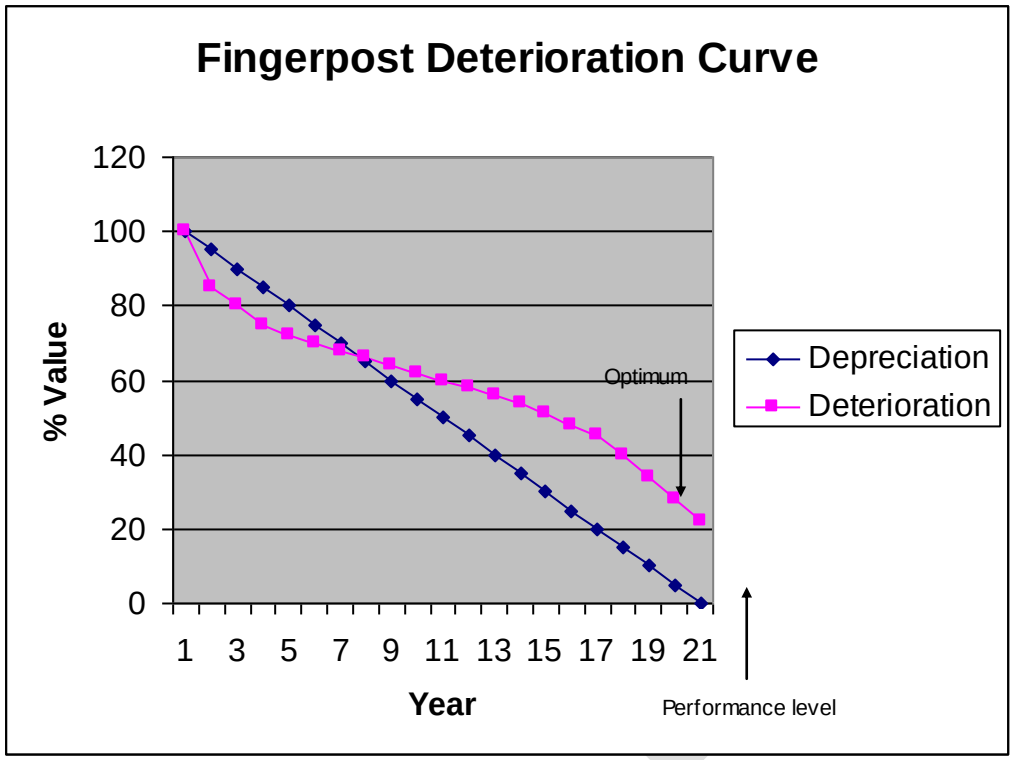
Revenue expenditure from year 1 to 20 is based on an assumption that approximately 30% of the asset will require repair at some point.
The cost of a repair is estimated at £50 labour plus materials. (The most likely repair being the replacement of a finger and or re-siting of a post reinstallation of posts).

KCC liability is a 100% of this figure.

Depreciation and deterioration

The position of the fingerpost asset is based upon the current picture from CAMS. In December *2014, 771* fingerposts were damaged, missing or out of repair *5.85* %
The minimum requirement given a lifespan of 20 years is to replace 5% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.



Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
14476	96	1389696	100%	69485	10133	Steady state*

Stiles:

Policy considerations and notes.

- KCC has a policy of least restrictive access.
- Where possible as stiles fall out of repair their removal is negotiated.
- Where required for stock control replacement with a kissing gate or gate will be negotiated. Landowners can refuse to have a more accessible structure.
- KCC will not authorise new stiles on the PROW network.
- Where stiles are to be retained only 25 % of the repair- replacement cost will be met. This is provided in the form of materials.

Design standard and general notes.

PROWAS design standard. British Standard 5709:2006

Currently stile kits are provided conforming to the British Standard. Pressure treated softwood kits are provided. This has been the case since approximately 2002. There are now issues around durability of the materials as the preservative treatments are more strictly regulated. This significantly reduces the lifespan of those elements of the stile in contact with the ground.

A significant proportion of the historic stile stock was sweet chestnut. This is a durable hardwood and readily available. It is heavy and difficult to transport in larger diameters. It was largely rejected for stile use as it tended to split along the xylem when in the round resulting in high wastage. There was also a significant tendency for steps to fail as nails worked loose when the step supports split.

Assumptions made.

The number of stiles on the network is the total taken from CAMS inclusive of all designs 1 step, 2 step, ladder and other.

The cost of a stile is based on the provision of a soft wood kit to BS 5709:2006.

A lifespan of 10 years is anticipated.

The modern replacement equivalent cost is £35 materials, £100 labour. Total £135

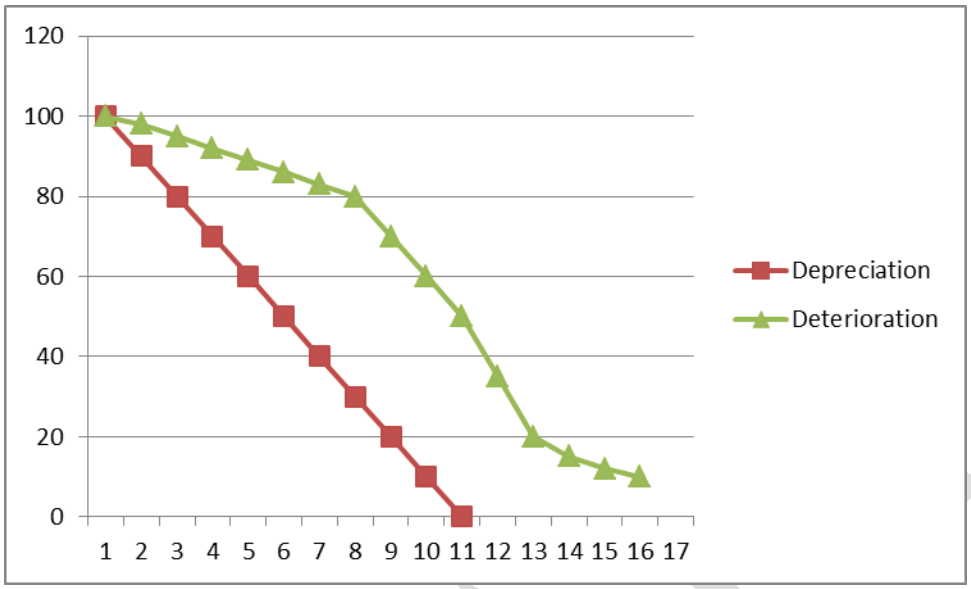
KCC liability is a minimum of 25% of this figure

Revenue expenditure from year 5 to 10 is based on an assumption that approximately 25% of the asset will require repair at some point.

The cost of a repair is estimated at £50 labour plus materials.

KCC liability is a minimum of 25% of this figure.

Deterioration and depreciation



The position of the stile asset performance is based upon the picture provided through reports gathered through CAMs for the last year, 2015. 568 *(6.6%)* stiles were reported as being out of repair during that period. This compares with the position on completion of the 2007 survey. At that point 22% of the stile asset was considered out of repair.

The optimum position given a lifespan of 10 years is that 10% of the asset is replaced on an annual basis (steady state -stand still).
The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
8602	135	1161270	25%	29032	21505	Sub-optimal

Future options for appraisal

1. Soft wood with amended treatments.

Much of the stile asset is life expired and in a poor condition.

Kissing gates:

Policy considerations and notes

KCC has a policy of least restrictive access.
A significant proportion of those stiles being replaced, with the agreement of landowners, are being replaced with kissing gates as they are considered to provide greater security for livestock than pedestrian gates.

To secure improved access to the PROW network the County Council is meeting a greater proportion of the cost of gates and kissing gates – approximately 60%.

The metal kissing gates provided are of a design that allows for the removal of the compound at a later stage with the agreement of the landowner. The improvement of accessibility to the network is seen as an incremental process and furniture design should reflect this.

Design standard and general notes

PROWAS design standard. British Standard 5709:2006

A range of kissing gates is used on the network.
To meet the British Standard it must be possible to pass a 1 metre cylinder through the gate.

Conforming designs: Woodstock medium and large mobility gates
Parkland range
Oxford (timber) large and medium

Designs may be employed that do not meet the British Standard but wherever possible the gate element of the design should be a minimum of 1.2 metres in width with any compromise being made in the size of compound used.

The use of galvanised metal gates in a rural context and particularly within the Kent Downs AONB has been questioned. It is considered that they are visually intrusive and have an adverse impact on visual amenity. Black painted and black powder coated gates have been used in the past; black is considered to visually regress in the environment. The substantial additional cost of powder coated / painted gates, at £60K per annum (based on 2008 prices and numbers of gates), has ruled out their use.

Assumptions made

The number of kissing gates on the network is the number taken from CAMS.

The cost of a kissing gate is based on the provision of a galvanised steel kissing gate meeting BS 5709:2006 (Centrewire Woodstock Medium accessibility gate).

A life span of 35 years is anticipated.

The modern replacement equivalent cost is £225 materials. £100 labour. Total £341.78.

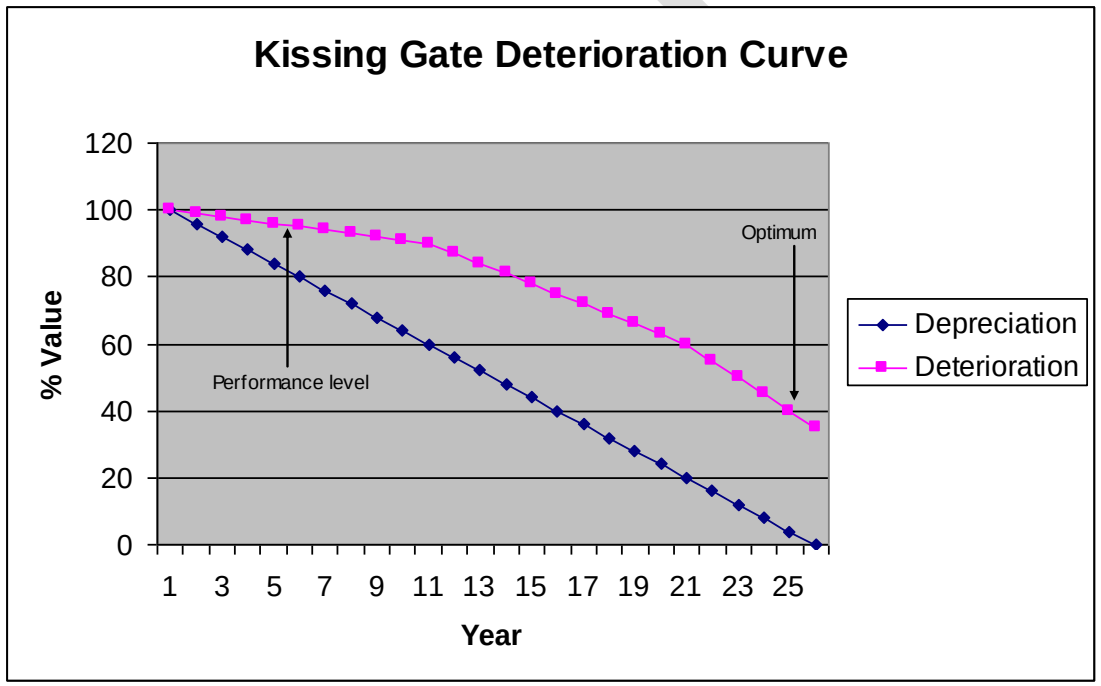
KCC liability is a minimum of 70% of this figure. This reflects the fact that a landowner contribution of £60 + £100 labour is not always received.

Revenue expenditure from year 5 to 35 is based on an assumption that approximately 30% of the asset will require repair at some point.

The cost of a repair is estimated at £100 labour plus materials. (The most likely repair being the replacement of roadside gates stolen at times of high metal prices)

KCC liability is a minimum of 70% of this figure.

<u>Deterioration and depreciation</u>



The position of the kissing gate asset is based upon the fact that the majority of kissing gates on the network have been installed since 2005 and therefore the majority of this asset is in good condition and early in its anticipated lifespan. Continued investment in pedestrian gates and kissing gates over a 30-35 year period should see the performance gap narrow as stiles are replaced with an asset with a longer effective lifespan. The performance gap

will stop closing at year 35 as the kissing gate asset starts to require replacement.
The minimum requirement, given a lifespan of 35 years is to replace 2.8% of the asset on an annual basis (steady state –stand still).
The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
3334	325	1083550	60%	21671	3334	Steady state*

Future options for appraisal

1. The KCC exposure per asset is high as our maintenance contribution to provision and maintenance is significantly higher than for stiles, 60% as opposed to 25%. Should a “provision of materials only” approach be taken to the maintenance of kissing gates that would drive down this cost.

2. The 25 year life span assumption initially made has been revised upward to 35 years. Is this revision too optimistic?

3. Use of CAMS to identify sites of frequent theft - use of timber should be considered at those locations.

Pedestrian Gates:

Policy considerations and notes

KCC has a policy of least restrictive access.
The most accessible and cost efficient replacement for a stile (assuming complete removal of the limitation can not be achieved) is a simple pedestrian gate.
Landowners will often exercise their power of veto in respect of authorised stiles preferring to either retain a stile or accept the greater stock security offered by a kissing gate.

In respect to new structures for stock control the default position should be the provision of simple self closing metal pedestrian gates (absolute minimum width between posts 1000mm).

To secure improvements to the accessibility of the PROW network the County Council is meeting a greater proportion of the cost of gates – approximately 70%. (£25 landowner contribution plus landowner labour £50)

Design standard and general notes.

PROWAS design standard. British Standard 5709:2006

A range of pedestrian gates are used on the network.
To meet the British Standard it must be possible to PROWASs a 1 metre cylinder through the gate.

Conforming designs: Milton Keynes
Ashton Gate 1 & 2 way
Marlow
Parkland range

Designs may be employed that do not meet the British Standard but where ever possible the gate element of the design should be 1200mm in width.

The use of galvanised metal gates in a rural context and particularly within the Kent Downs AONB has been questioned. It is considered that they are visually intrusive and have an adverse impact on visual amenity. Black painted and black powder coated gates have been used; black is considered to visually regress in the environment. The substantial additional cost of powder coated / painted gates, at £60K per annum, has ruled out their use. Additionally the majority of agricultural gates are of similar galvanised steel construction.

Assumptions made

The number of pedestrian gates on the network is the number taken from CAMS. (Gate pedestrian – wood, metal,rambler gate).

The cost of a pedestrian gate is based on the provision of a galvanised steel gate meeting BS 5709:2006 (Centrewire, Marlow pedestrian gate BS compliant).

A life span of 35 years is anticipated.

The modern replacement equivalent cost is £99.90 materials, £50 labour. Total £149.90.

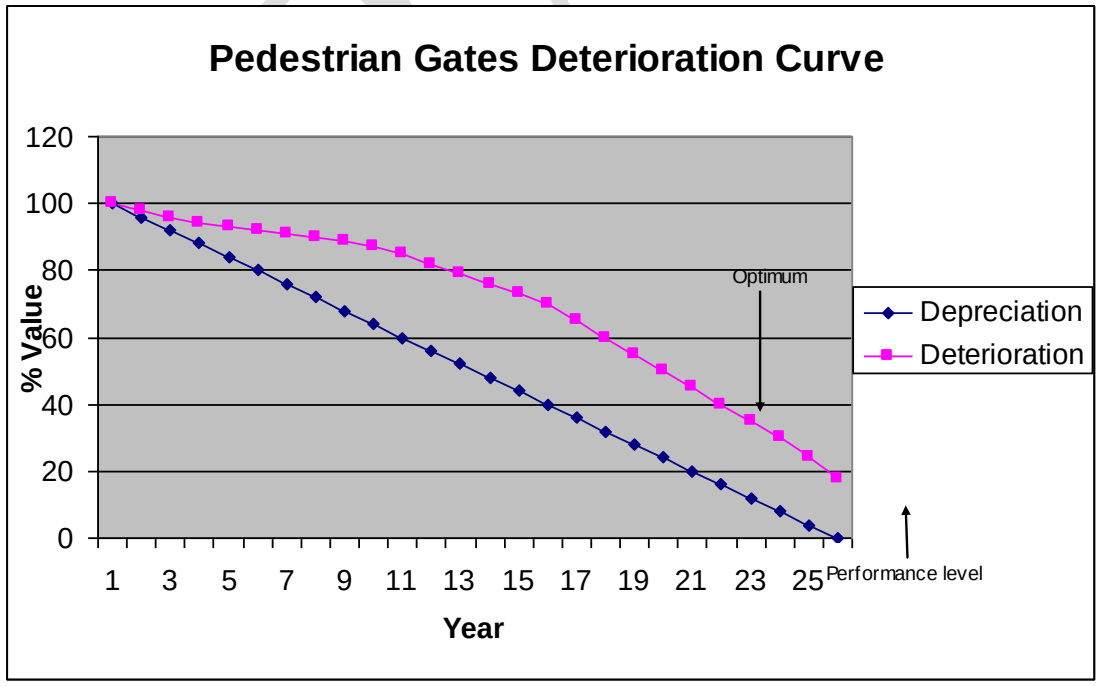
KCC liability is a minimum of 70% of this figure.

Revenue expenditure from year 1 to 35 is based on an assumption that approximately 40% of the asset will require repair at some point.

The cost of a repair is estimated at £60 labour plus materials. (The most likely repair being the adjustment/ replacement of hinges and catches and the resetting of hanging posts).

KCC liability is a minimum of 70% of this figure.

Deterioration and depreciation



The position of the pedestrian gate asset is based upon the picture on completion of the 2007 survey and the current picture from CAMS. In 2007 16% of the gate asset was considered out of repair. That figure now stands at X%
The minimum requirement given a lifespan of 35 years is to replace 2.8% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
2099	150	314640	60%	6293	1439	Steady state*

Future options for appraisal

1. Should gates be provided at a cost that is subsidised only to the full value of the provision of a stile?

2. The 35 year life span assumption is an upward revision on the basis of current performance, is this optimistic?

3. Use CAMS to identify sites of frequent theft - use of timber at those locations.

Equestrian Gates

Policy considerations and notes.

In respect to new structures for stock control the default position should be the provision of simple self closing metal equestrian gate (minimum width between posts 1524mm).

To secure improvements to the accessibility of the PROW network the County Council is meeting a greater proportion of the cost of gates – approximately 70%.

Design standard and general notes.

PROWAS design standard. British Standard 5709:2006

Gates can present a significant barrier to equestrian users.
Where it is necessary to authorise a gate for the purposes of stock control care needs to be taken in siting them to ensure sufficient manoeuvring space particularly giving access to latches.

There has been a good deal of discussion with equestrian users about the most suitable design of self-closing gates and latches. This is currently subject to research by Natural England the results from which are expected in 2016. While no recommended design has emerged the most significant points seem to be:

- that the latch is accessible from horseback
- that the latch is easy to operate
- that catches do not protrude from the gate posts so that they can snag any part of the saddle or harness.
- That the gate closes slowly enough to permit easy access to equestrians while minimising the risk of stock escaping.

Bridleways may be particularly suitable for cyclists and those with mobility problems so gate and latch design should reflect the wider user base.

The use of galvanised metal gates in a rural context and particularly within the Kent Downs AONB has been questioned. It is considered that they are visually intrusive and have an adverse impact on visual amenity. Black painted and black powder coated gates have been used; black is considered to visually regress in the environment. The substantial additional cost of powder coated / painted gates, at £60K per annum has ruled out their use. Additionally the majority of agricultural gates are of similar galvanised steel construction.

Assumptions made

The number of equestrian gates on the network is the number taken from CAMS. (gate – bridle wood, metal)

The cost of an equestrian gate is based on the provision of a galvanised steel gate meeting BS 5709:2006 (Centrewire, Chiltern bridle gate BS compliant)

A life span of 35 years is anticipated.

The modern replacement equivalent cost is £208.00 materials and £50 labour. Total £258

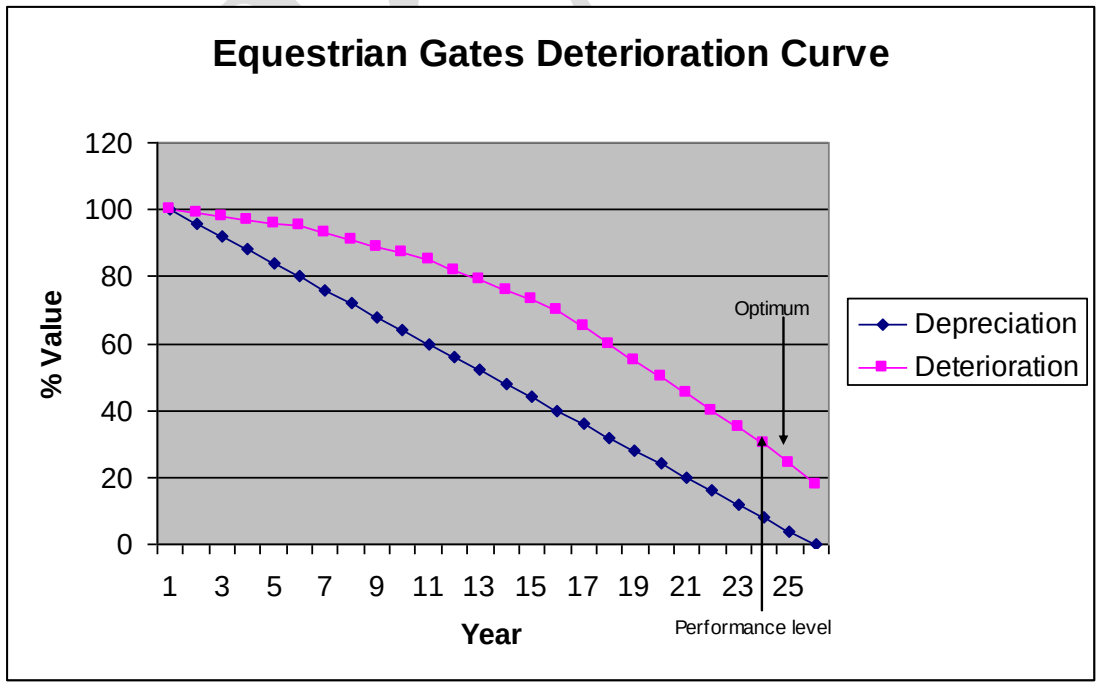
KCC liability is a minimum of 70% of this figure.

Revenue expenditure from year 1 to 35 is based on an assumption that approximately 25% of the asset will require repair at some point.

The cost of a repair is estimated at £60 labour plus materials. (The most likely repair being the adjustment/ replacement of hinges and catches and the resetting of hanging posts).

KCC liability is a minimum of 70% of this figure.

Deterioration and depreciation



The position of the equestrian gate asset is based upon the picture on completion of the 2007 survey and the current picture from CAMS. In 2007 16% of the equestrian gate asset was considered out of repair.
The minimum requirement, given a lifespan of 35 years, is to replace 4% of the asset on an annual basis (steady state –stand still).
Targeted capital investment over the last three years has brought the asset performance back to an optimum level.

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
433	258	111714	60%	2234	186	Steady state*

Future options for appraisal

1. The KCC exposure per asset is high as our contribution to provision and maintenance is significantly higher than for stiles, 60% as opposed to 25%. Should a provision of materials only approach be taken to the maintenance of gates would that further drive down this cost?

2. The 35 year life span assumption is an upward assumption, is this too optimistic?

3. Use of CAMS to identify sites of frequent theft - use of timber at those locations.

4. Should the choice of gate be amended in light of the NE study & BS 5709:2018?

Field Gates

Policy considerations and notes

Field gates are those gates that effectively exist for agricultural purposes, principally to enable livestock movements and the movement of large agricultural machinery. While accommodating agricultural use the gates also provide for use of the public right of way.

Where lawful limitations on a footpath, bridleway or restricted byway a minimum of 25% of the maintenance costs reasonably shown to have been incurred by the landowner may be reclaimed.

In order to secure improvements to accessibility of the network KCC has provided gates of designs that facilitate easier public use, or have provided easy to use latch mechanisms.

Design standard and general notes

PROWAS design standard. British Standard 5709:2006

Given the width of field gates there should be no issue with compliance with the British Standard. The accessibility of gate latches and the suitability of the PROW surface in gate areas are more likely to be limiting factors.

Field gates are a part of the fabric of agricultural land holdings. A contribution from the County Council is not always sought for the maintenance of authorised gates for that reason. More accessible gates are provided through negotiation where appropriate. The minimum contribution at 25% is assumed.

Assumptions made

The number of field gates on the network is the number taken from CAMS. (Gate – field gate metal/ field gate wood)

The cost of a field gate is based on the provision of a galvanised steel gate meeting BS 5709:2006 (Centrewire, York 2 in 1 combination gate - BS compliant).

A life span of 20 years is anticipated.

The modern replacement equivalent cost is £234.00 materials, £150 labour. Total £384.03.

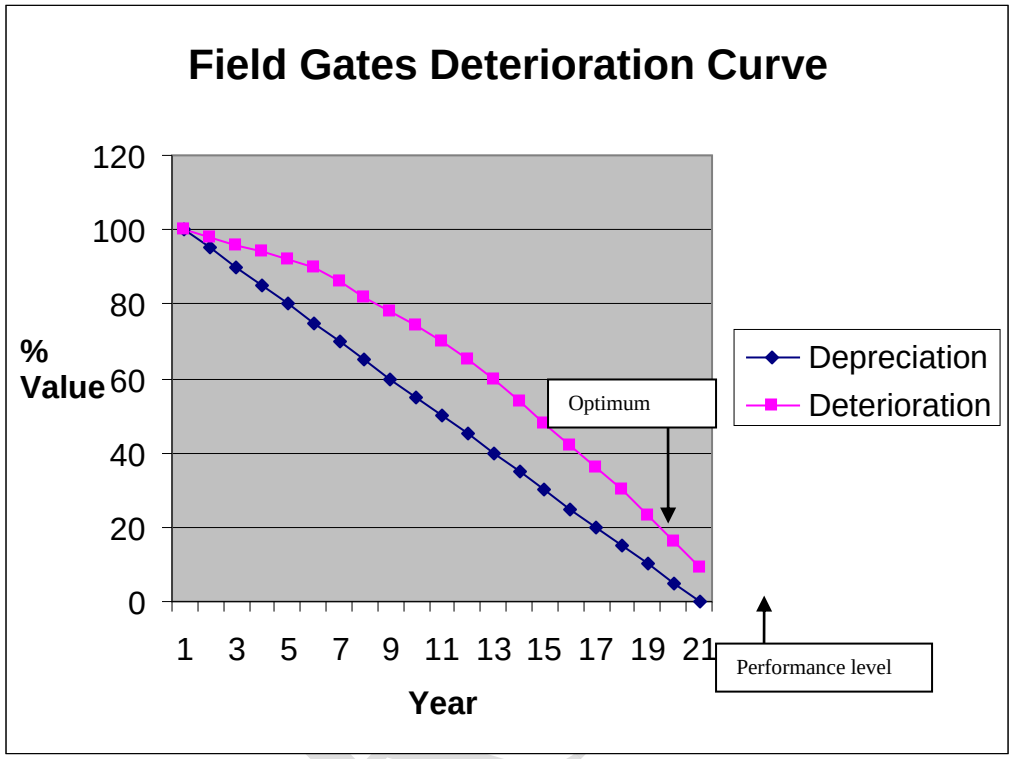
KCC liability is a minimum of 25% of this figure.

Revenue expenditure from year 1 to 20 is based on an assumption that approximately 20% of the asset will require repair at some point.

The cost of a repair is estimated at £60 labour plus materials. (The most likely repair being the adjustment/ replacement of hinges and catches and the resetting of hanging posts).

KCC liability is a minimum of 25% of this figure.

Deterioration and depreciation



The position of the field gate asset is based upon the picture on completion of the 2007 survey and the current picture from CAMS. In 2007, 16 % of the field gate asset was considered out of repair.
The minimum requirement, given a lifespan of 20 years, is to replace 5% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
2313	384	888192	25%	11102	1388	Steady state*

Future options for appraisal

Specified closing or latch types for gates. BS5709/2018

Campaign – general reminder on gate accessibility – field gates tend to be poorly maintained with poor fastenings and poor ground conditions around them.

Vehicle barriers- Bollards- Motorbike Inhibitors & Chicanes.

Policy considerations and notes.

Barriers may be installed for the purposes of safeguarding the users of the highway: Highways Act 1980 section 66.
Works to improve the amenity of the highway or provide facilities may be carried out under sec 115A-D Highways Act 1980.

The cost of barriers is high and therefore use should be limited to: addressing known or demonstrable issues such as nuisance vehicle use; where there is a reasonable expectation of a successful outcome, ie the barrier can't simply be bypassed; or in support of traffic regulation orders.

Design standard and general notes.

PROWAS design standard. British Standard 5709:2006.

The installation of barriers, particularly to prevent vehicle use, potentially conflicts with the policy of least restrictive access. Equality Impact Assessments should be completed prior to installation.

The cost of barriers is high and therefore they should be limited to addressing known, demonstrable issues such as nuisance vehicle use. They should be used where there is a reasonable expectation of a successful outcome, ie the barrier can't simply be bypassed.

Some forms of barrier for instance lockable bollards may be arranged to provide a minimum gap of 1000 -1200mm. Heavy duty vehicle barriers may not provide the same accessibility and bypasses or in extreme cases radar operated gates may be considered alongside the barriers.

Thought must be given to the likely vulnerability of some structures at remote sites and sites where there are high levels of criminal and antisocial activity.

The asset valuation placed against this item is relatively high as although in simple form a structured gap may have a low cost many sites have numbers of lockable bollards or higher value barriers.

Assumptions made

The number of barriers, chicanes etc on the network is the number taken from CAMS (Other and Gap / chicane)

The cost of a barrier is based on an arrangement of 4x lockable steel bollards (similar in value to a motorcycle A frame barrier) (Centrewire).

A life span of 30 years is anticipated.

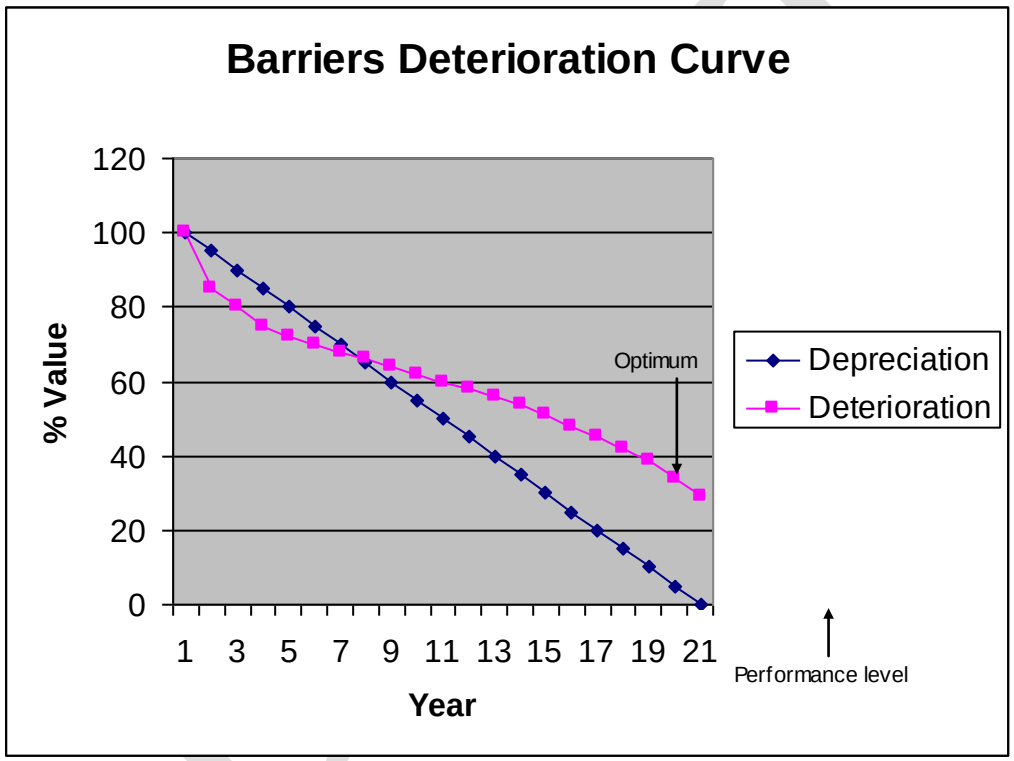
The modern replacement equivalent cost is £320 materials, £200 labour. Total £520.

KCC liability is 100% of this figure.

Revenue expenditure from year 1 to 30 is based on an assumption that approximately 50% of the asset will require repair at some point.
The cost of a repair is estimated at £140 labour plus materials. (The most likely repair being the replacement of a single bollard, welding, replacement of locks and the reinstallation of posts).

KCC liability is a 100% of this figure.

Depreciation and deterioration



The position of the barrier asset is based upon the current picture from CAMS. Currently 5.4 % of the asset is considered out of repair.
The minimum requirement given a lifespan of 30 years is to replace 5% of the asset on an annual basis (steady state –stand still).

The optimum intervention point reflects the point at which the asset is still safe and functioning to the required standard. In ideal circumstances the replacement and maintenance interventions would take place before the asset fails.

Asset valuation and calculations

Asset number	MRE/ asset £	MRE Whole Asset £	KCC Liability %	Steady state – annual capital replacement expenditure required £	Revenue expenditure annual requirement £	Current asset position
1216	520	632320	100%	21077	2837	Steady state*

Future options for appraisal

Use of precast concrete blocks particularly at vulnerable locations.

The removal or non- replacement of damaged barriers at particularly vulnerable sites.

The soft estate:

The soft estate is defined as all those elements of the PROW network not subject to agricultural production and not surfaced. While the soft estate can't be approached in the same way as the rest of the asset, there is no depreciation as there is no capital investment, it still represents one of the greatest on-going liabilities for the PROWAS.

Policy considerations and notes

KCC has a duty to maintain the publically maintainable highway as the highway authority.

Equalities Act 2010: Failure to carry out vegetation clearance on well used routes (free from stiles) including the soft margins of metalled urban paths is likely to impact disproportionately on the elderly and ambulant disabled.

Adaptation to climate change: Unsurfaced routes have the potential to act as conduits for species migration in the face of climate change and management regimes should enable this.

Design Standards and General notes

Where planting / restoration / landscaping is being considered, reference should be made to the PROWAS Design Guide.

The specification for vegetation clearance is as set out in the Vegetation Clearance term service contract.

It is recognised that stopping or reducing the frequency of vegetation clearance has an impact on the cost of recovery in future years although this tails off, to some extent, through years 3 -6 as the time and machinery costs associated with bringing vegetation back under control are broadly similar. Beyond year 6 more substantial machinery and greater labour costs are incurred.

Assumptions

The length of soft estate requiring maintenance is as originally established in the vegetation term service contracts 2009 -13.

The metreage expressed is the optimum number of linear metres the PROWAS would cut in total resources permitting. i.e. if a path requires two cuts to keep it in an appropriate condition then it is the total of two cuts.

The total length of network subject to vegetation clearance is 17% - this is not the total length cleared as established above.

The average cost of vegetation clearance is 12p/m. (2015 average rate).

There is a loss of economies of scale and contract efficiency if shorter lengths are cleared. Reduction in clearance lengths of 50% produced a saving of 30% (Compensation events 2011-12).

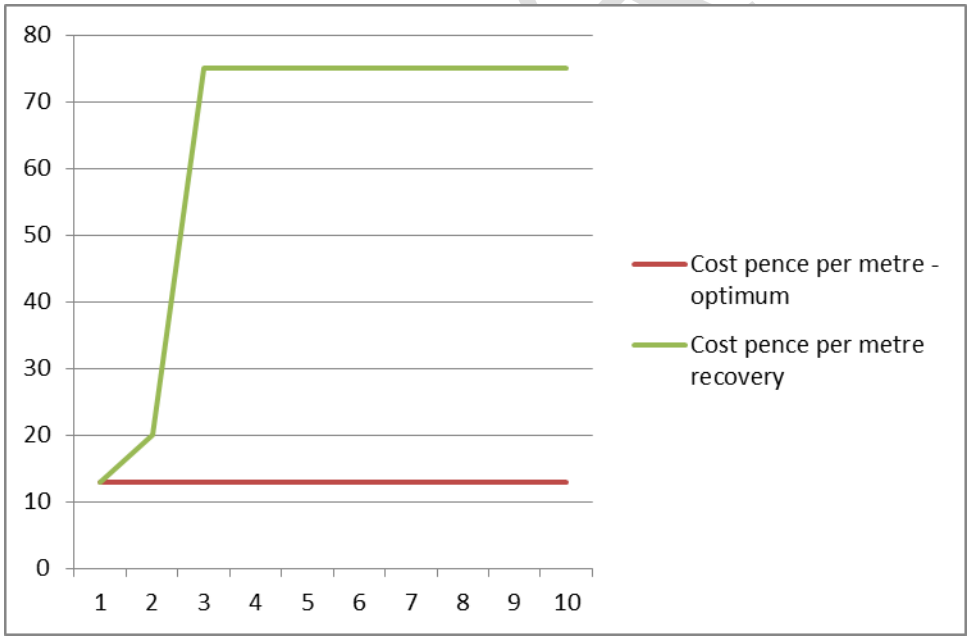
Recovery costs in year 2 following no clearance in year 1 is 20p/m (2015 rate)

Recovery costs years 3-6 reflect the increased labour required to cut heavier vegetation. This varies between 50p and £1.30/ m (2015 rates). A rate of 75p/m has been applied for recovery for years 3-6.

Recovery beyond year 6 is expected to equate to the higher £1.30 / m as tractor flails/ chainsaws will be required for heavier vegetation, saplings etc.

Clearance by contractors is supplemented by ad-hoc spot clearance by the 200+ active Countryside Access Wardens and 18 volunteer strimmer users. This work helps in both keeping the network open and reducing the volume of higher cost recovery work. It should also be noted that while increasing the number of volunteer strimmer users their efforts supplement and cannot meet the volumes completed by highly mechanised and organised contractors. There are also significant running and training costs to the PROWAS.

<u>Recovery costs</u>



Required expenditure calculations

If the optimum 1758802m of vegetation clearance is undertaken at a cost of 12 p/m the required expenditure is: **£248291** per annum.

This assumes that efficiencies are gained from clearing greater lengths.

In 2015-16 1028922 metres were cleared at a rate of 13 p/m = £133759.

729880m were not cleared.

Recovery cost/ performance gap – Year 2 = £145976
Year 3 = £547410

Current asset position
Sub-optimal

Future options appraisal

1. The use of term service contracts based on time charge with minimum performance levels.

2. Increased use of volunteers.

3. The tree estate. There are estimated as 200000+ trees within falling distance of PROW. Few if any are considered to be KCC trees, however cost is incurred in respect of their management. A figure should be included for their management bases on the average costs incurred for removal, action over the last 5 years.

Exceptional items:

The majority of the public rights of way asset fits the categories and parameters set out already. There are however a number of items that are more complex, carry significantly greater risk or have a higher profile and are therefore highlighted for special consideration.

Essella Road Rail Bridge.

This bridge carries public footpath AU33 over the railway at Ashford. Unlike all other rail bridges carrying public rights of way it is maintainable by the County Council and not Network Rail. Investigations indicate that this is as a result of the bridge being constructed at the request of the Ashford Highways Board at the time of or post the construction of the railway. The cost of bridge maintenance is disproportionate when compared with the rest of the PROW bridge asset. The cost of a track possession to enable principal bridge inspection is significant in itself (even if no work is then identified – a rather optimistic view). Principal bridge inspection for this structure is around £26K excluding track possessions.

The 2017/18 Principal Inspection and specialist inspections indicate the need to replace the existing stairs and the bridge bearings. Estimated cost – excluding track possessions £300K. Replacement of the bridge is estimated at £700 - £900K . Options are now being assessed.

Medway Towpath: Allington to Aylesford

The improvement and strengthening of sections of the towpath plus the diversion of the most vulnerable sections away from the river have largely mitigated the significant financial risks associated with this asset.

The comprehensive survey and design work for the improvements identified remaining sections that may be vulnerable to further erosion. These appear to be stable currently.

Langdon Bay Steps.

The risks associated with this path have been mitigated. The collapsed sections of walkway are not maintainable public highway. Those remaining sections of highway will cease to be through the process of coastal erosion.

PROWAS will limit any maintenance to only those sections that are publically maintainable and safe to use leaving the National Trust as landowner to undertake the majority of the repair should it wish to.

The North Downs Way National Trail

The North Downs Way runs 153 miles from Farnham on the Surrey - Hampshire border to the English Channel at Dover. Approximately 105 miles of the trail is in Kent.

There is an expectation that the route will be maintained to a standard that reflects its status as a National Trail:

- the path furniture will be well maintained and accessible,
- the route will be good under foot, and,
- it will be signposted and way-marked to the highest standard.
- vegetation will be managed so that the route remains accessible at all times.

Additionally there are a number of assets relating to interpretation and trail branding – such as the start/ finish point at Dover or the Resting Pilgrim at Lenham.

The National Trail within Kent is maintained by the PROWAS. The overall management of the trail is the responsibility of Natural England who grant aid maintenance through the National Trail Partnership. The maintenance costs relating to the trail are set out in the table below (excluding substantial crossings that are the responsibility of other departments or organisations such as Jades Crossing and the Medway Bridge); they reflect the liabilities of the highway authority. The ability of the PROWAS to meet the cost of maintenance over and above the minimum is dependent on the grant contribution made by Natural England.

The assumptions made reflect those set out earlier in this asset management plan. The asset is as recorded in CAMS at 5 November 2015.

	Quantity	MRE Cost (Modern replacement equivalent)	Asset value	Annual MRE cost	Revenue	Annual Requirement	Annual Requirement per Asset
Stiles	100	105	10500	263	63	326	£3.26
Pedestrian gates	28	180	5040	121	16	137	£4.89
Kissing gates	92	330	30360	850	83	988	£10.73
Equestrian gates	4	280	1120	27	3	30	£7.50
Field gates	13	290	3770	47	5	52	£4
Sleeper bridges	1	220	220	15	1	16	£16
Timber bridges	1	2253	2253	75	1	76	£76
Fingerposts	179	350	62650	783	179	962	£5.37
Waymark posts	300	50	15000	1000	200	1200	£4
Aggregate paths	64747m2	15/m2	971205	48560	14568	63128	£0.97
Metalled paths	8945m2	40/m2	357800	7156	1789	8945	1
Soft estate	122078m				15870		
Interpretation							
		Total	1459918	**58897**	**32778**		
		Annual requirement				**91675**	

England Coast Path

Government is committed to the creation of a continuous National Trail around the coast of England. This is to be delivered by 2020.

The PROWAS have worked with Natural England to deliver the route. Government funding has been made available for establishment work. The first sections in Kent opened in 2016.

The on-going maintenance and management will be part funded by Natural England through a National Trail Partnership. A trail partnership has yet to be established for the section in Kent. Although the PROWAS will continue to apply asset management principles to the management of the new trail it is recognised that Natural England do not favour this approach and there may be a disparity between funding allocation and the true costs of maintenance and management.

Summary

The value of the PROW asset based on the calculations above is: £107,781,982.10

Current asset performance and the performance gap

	Annual costs	Performance Gap
Furniture	£228632	
Bridges	£198333	
Metalled paths	£1,350,934	
Aggregate paths	£617880	
Soft estate	£138,904.47	
Total	**£2606835**	**£2m+**

Table showing the annual cost of maintaining individual elements of the asset and the additional costs that would be attached to dealing with the backlog in maintenance. i.e.closing the performance gap.

As might be anticipated some elements of the asset are small in number and lower in cost. The uplift in capital expenditure since 2004 through the Local Transport Plan funding and the capitalisation of 10% of that allocation to fund officers to deliver capital programmes has enabled progress to be made in some areas. Particularly highlighted where the general condition of the asset is good are:

- Equestrian gates,
- Sleeper bridges,
- Kit bridges
- Steps

Gates: The adoption of a policy of least restrictive access by the PROWAS and the negotiation of the removal of stiles and their replacement with pedestrian gates and kissing gates results in a position where the majority of the kissing gate and pedestrian gate asset is young, in good condition and likely to require little, by way of maintenance, over the next 10 + years.

Stiles: When this plan was first drafted in 2011 the condition of this element of the asset was poor. The reduction in the number of stiles and their replacement with better performing, safer, structures has improved the position in respect of this element of the asset. 22% out of repair or in poor condition in 2007 as opposed to approximately 10.5 reported as requiring repair/ replacement in 2013.

The North Downs Way fingerposts: These are equally youthful and therefore should require little maintenance over the next 7+ years. However, timber posts vary more in respect of performance. Soil conditions have a greater impact on lifespan and there is a higher attrition rate as a result of accidental and deliberate damage.

Of greater concern is the performance of:

Bridges: The bridge asset is generally in a reasonable position in respect of kit bridges. However there remain anomalies in the inspection regime that the Service is working hard to address. The inspection regime that is in place is intended to identify appropriate interventions "just in time" to ensure that asset condition is stable. However, issues were identified particularly in respect of concrete and steel constructions, two of which have failed in the last 5 years. A further 4 structures have required immediate closure or short term intervention work to secure the structure until replacement is possible.

Metalled paths: the mapping of the excluded areas and the taking back of the agency agreements for the urban areas in 2001 has placed a greater maintenance burden on the PROWAS. The condition of the asset at the point of taking responsibility was poor. Adopted footpaths had long been the lowest of priorities for Kent Highways and Transportation and District / Boroughs operating under agency agreements, when compared with the rest of the highway network. Many had received little attention. Many are of very poor construction with thin surfacing over little more than beaten earth. Even those of better construction are generally old and in an advanced state of deterioration. The MRE is significant for a full construction. It is hard to see the performance gap doing anything other than growing. To be weighted against this is the fact that the asset retains a high residual value and patching and thin surfacing can extend the safe life of the asset.

Aggregate paths: Aggregate paths are particularly suitable for PROW users. Their construction is considerably less expensive than metalled paths and they retain a high residual value beyond their anticipated lifespan because, other than on paths with a steep gradient, much of the original material remains and serves as the base of any replacement construction. This generally means that any reconstruction of an aggregate path is stronger as there is a greater depth of material, and requires less material for formation layers so reducing cost. Heavy use of bridleways, restricted byways and BOATs has resulted in a general increase in the deterioration in this element of the asset.

General performance

What is clear is that, currently under a largely reactive inspection regime, much of the PROW asset fails completely before it is replaced. Asset failure is largely identified by reports received from the public and Countryside Access Wardens. It is reasonable to assume that more of the asset is out of repair than is recorded and the assumption made about current performance and the performance gap is therefore conservative.

The performance gap as calculated on the basis of the current performance of the asset in comparison with the optimum condition of the asset stands at £2030306. This figure is over and above the £2606835 identified as the annual spending requirement to maintain the asset in a good condition. This assumes that the asset performs as anticipated and that it is maintained to an appropriate condition in line with the statutory requirements. Intervention and replacement of the asset is planned and assumed to occur before it fails.

What is evident also is that the performance gap grows slowly despite not resourcing maintenance at the required level. I believe this is because some elements, such as aggregate paths, largely remain usable for much of the year and passable, albeit with a little difficulty or discomfort, long after they have fallen below their optimum level. Metalled paths may be badly deformed, pot holed, cracked and uneven but still support use by the public. I don't believe that the asset plan understates the lifespan of such assets simply that they continue to be useable long after they should have been reconstructed. The impact of this is almost certainly increased revenue expenditure as potholes are filled. (Similar to the road network)

Network prioritisation:

Historically the asset management requirement has not been funded at the optimum level. Additionally service requests for maintenance from the public have outstripped the ability of the service to meet demand. For these reasons the service operates to stated operational priorities. The asset management plan helps inform the operational priorities and enable risk and budget shortfall to be managed in the most effective way. It is unrealistic in the current economic situation to expect funding to be increased to enable the performance gap to be closed entirely. The AMP does enable informed decisions about the management of the asset to be taken so that those areas that pose the greatest potential risk and deliver greatest benefit are targeted.

Closing the gap

The closure of the performance gap is not simply a case of increasing investment; “throwing money at it”. Increased investment is clearly part of the solution but delivery of increased expenditure on the network requires greater resource in terms of delivery – with some elements of the asset such as gates and stiles being particularly costly in terms of officer time. This time is not factored into the MRE. It also should be considered that a sharp peak in investment, as was seen in the early 1990’s in terms of stiles and kit bridges will result in that part of the asset reaching obsolescence at around the same time and causing a high demand for investment or the performance gap to grow rapidly.

Eg There are 1034 timber kit bridges the majority of which were installed under Parish Paths Programme/ Partnership funding between 1990 and 2000. While the majority of those bridges are currently sound given their expected lifespan of 30 years they will start to reach obsolescence in 2020.

The options identified for future appraisal have the potential to reduce maintenance cost, MRE cost, or whole life cost of the asset. All have the potential to close the performance gap or at least to arrest the decline of some assets. Management decisions are taken with a view to reducing long term expenditure and closing the performance gap in a sustainable way.

In terms of existing policy, the reduction in the number of stiles and their replacement with more durable furniture such as pedestrian gates and kissing gates not only results in a more accessible network to the benefit of the public but also over time will close the performance gap. The removal of stiles without replacement helps reduce the size of the asset and also helps close the gap.

Some elements of the asset, particularly pedestrian gates and fingerposts exist in large numbers but are relatively low cost. Much can be done to close the performance gap in terms of these elements, by simply targeting expenditure. The position in terms of fingerposts is the more difficult to improve particularly as there is a high rate of attrition as a result of deliberate and accidental damage in the early years.

Under investment in surfaced paths (aggregate and metalled) is slow to manifest and far harder to resolve without significant investment. On the positive side increased expenditure on interventions to extend the life of metalled paths may maintain or slow the growth of the performance gap and maintain a safe condition although failing to address the underlying decline in the asset other than in the short/ medium term.

Under investment in the soft estate can be most easily recovered at least initially. Cost grows rapidly at year 3 as heavier more powerful, often more labour intensive, equipment is required. Additionally the requirement in respect of cost has always been based on having programmes of regular maintenance achieving economies of scale and maximum efficiency. The risk in terms of annual/seasonal variations in growth and their impact on costs have been borne equally by contractors and the County Council. In the absence of regular clearance risk, and therefore cost, is transferred to the County Council. A reduction in clearance, while more readily recovered from given investment, more rapidly manifests itself as tracts of the network become unusable.

Risk Management.

Risk assessment

There are several obvious factors relating to the management of risk that should, and through the use of the Intelligent Investment Tool, do inform investment decisions. They are also factors common to risk assessment:

The nature of the hazard: in this case a failed asset. Some types of asset are inherently more hazardous than others even when in good condition, for instance stiles as opposed to a pedestrian gate.

Potential outcome: Should the asset fail what is the most likely outcome? For instance should a pedestrian gate fail when in use the most probable outcome is that it simply drops on its hinges and causes no injury. If a stile were to collapse when in use injury would be more likely to occur. If a bridge were to collapse when in use the potential outcome is clearly more serious.

Probability: What is the likelihood of an injury occurring should the asset fail? For example a stile is more likely to fail when under load, ie when in use and therefore asset failure is more likely to result in injury than, for instance, an aggregate path that will fail over an extended period , to a degree irrespective of use.

The asset management plan also assists in applying this model as those elements of the asset identified as carrying most risk can be targeted to reduce risk.

	Hazard	Potential outcome	Probability	Overall risk assessment
Stiles	M	M	H	M
Kissing gates	L	L	L	L
Pedestrian gates	L	L	L	L
Equestrian gates	L	M	M	M
Field gates	L	M	M	M
Barriers	L	L	L	L
Fingerposts	L	L	L	L
Fingerposts NDW	L	L	L	L
Sleeper bridges	M	M	M	M
Kit bridges	M	M	M	M
Bridges	M	H	M	M

Metalled paths	L	M	M	M
Aggregate paths	L	L	L	L
Soft estate	L	L	L	L

Risk assessment in the event of asset failure. L==low, M= Medium, H=High

Risks to the authority

Two broad principal risks are identified to the authority relating to the carrying out of the maintenance function on PROW.

Non-faesence: A failure on the part of the authority to carry out its legal duties in terms of managing the maintenance of the PROW network in line with its statutory obligations.

Mal-faesence: A failure on the part of the authority to execute works to the appropriate standard.

Further subsidiary risks clearly exist:

Compulsion to act: Under the provisions set out in the Highways Act 1980, section 56, the County Council may be compelled to act to maintain a highway. Given the nature of the PROWAS user base this is seen as a likely risk as a number of user groups are familiar with the provisions, have the appropriate legal support to pursue an action and have done so in the past.

Third party injury claims. The number of claims has increased in recent years. In the period 1996 to 2006, 36 third party injury claims were received in respect of PROW. In the period 1 January 2007 to 1 December 2011, 55 claims were received. Eight claims were settled at a cost of £74K. Accidents can and do occur on the network and the absence of a regular programmed regime of inspection impairs the prospects of third party claims being successfully opposed.

Corporate manslaughter. “The Corporate mind” is exposed to greater risk in terms of Corporate Manslaughter dependent on where investment is reduced. This is a challenge in terms of the spreading of budget savings. It is incumbent on the PROWAS to identify those elements of maintenance expenditure critical to keeping the network safe within the strictures of the finance made available and the potential implications of savings being demanded.

Clearly much can be done to manage risk, the Asset Management Plan being just one element. Budget pressures clearly have an adverse impact on the management of the asset and expose the authority to further risk. What is important is that the authority continues to make informed decisions relating to the management of the PROW asset that are robust and stand up to scrutiny.