



Highway Asset
Annual Status & Options Report
Carriageways and Footways
2015/16

Powys County Council

Working Document

1 Introduction

This report presents a summary of the council's carriageway and footway assets as at March 2016. It

- Describes the current condition of the assets
- Details the service that the assets and current budgets are able to provide
- Presents options available for the future

The report complements the Highway Asset Management Plan (HAMP). It provides information to assist with setting budget and service levels for carriageways and footways.

1.1 Status

The status of each asset group is provided in terms of current condition, the known outputs that are delivered, the standards being achieved and, where possible an indication of customer satisfaction.

1.2 Options

The report considers the following options:

- A continuance of current funding levels
- The predicted cost of maintaining current standards
- Predicted effect of a preventative strategy
- The projected costs of specified service levels

1.3 Long Term Forecasts

Road assets generally deteriorate slowly. The impact of a level of investment cannot be shown by looking at the next couple of years. The report includes 20 year forecasts to support decision making with an understanding of their long term implications.

1.4 Impacts Risk

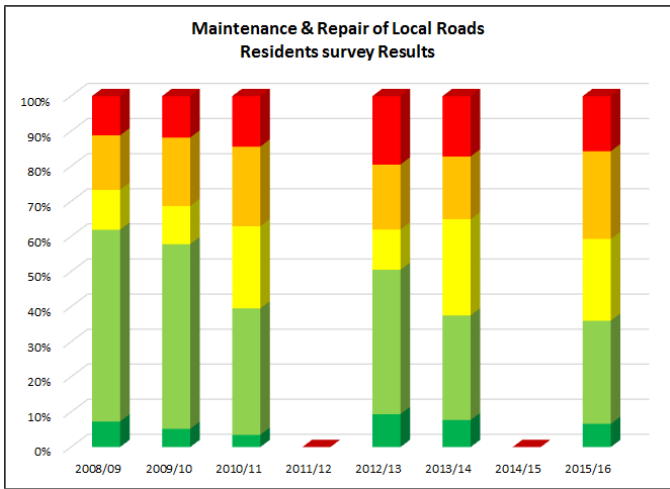
To reflect continuing budgetary pressures the report contains an assessment of the impact for each option presented. The level of information available is considered appropriate to the risks however more detailed information would enable more accurate predictions.

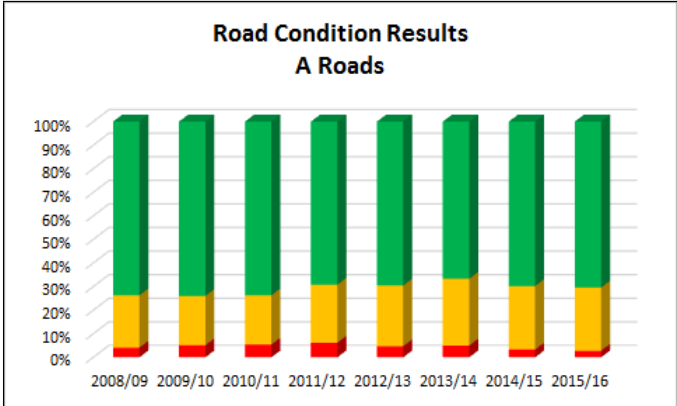
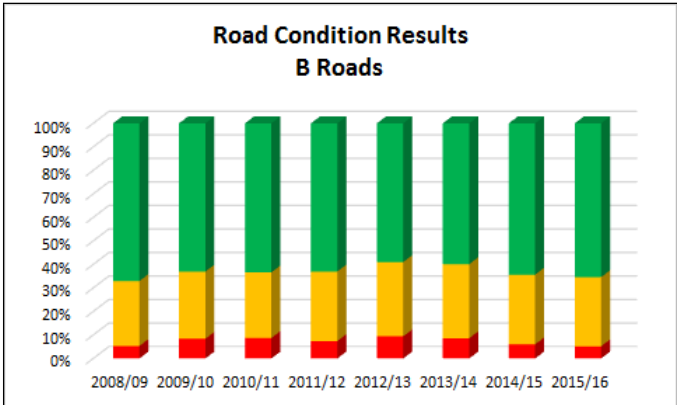
2 Carriageways

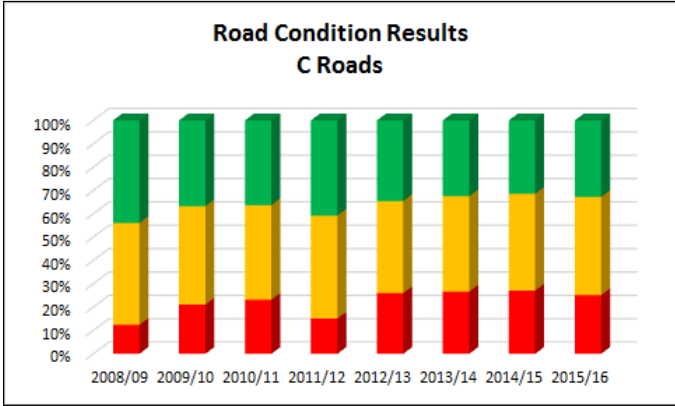
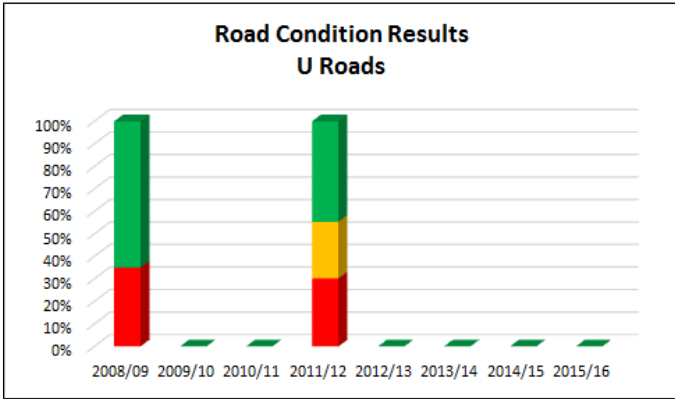
2.1 Key Issues

1. Local Government Borrowing Initiative (LGBI) between 2012/13 and 2014/15 resulted in improvements to the asset. Current investment levels are around 30% of pre LGBI levels.
2. Current investment levels (c£2m) are well below predicted steady state (c£8m) and thus ongoing deterioration is predicted.
3. C road condition is poor (25% red requiring treatment, 42% amber requiring investigation)
4. Unclassified road condition is unknown but unclassified roads make up 42% of the network.
5. The current planned maintenance return periods for each road type using the current budget are in the order of:
 - A Roads – 13 years
 - B Roads – 33 years
 - C Roads – 118 years
 - Unclassified Roads – 181 years
6. Current methods of planned maintenance spend would not deliver the best out-turn in the long term as a preventative approach is predicted to improve condition (based upon an £8m pa budget) by 10% compared to current methods, hence a change of approach is recommended along with increased investment.
7. Reduced capital spend increases reactive maintenance which places pressure on revenue allocations and cyclic activities.
8. Repairing defects will likely become unsustainable at current budget levels.
9. Customers are less satisfied and the trend is likely to continue at current investment levels.

2.2 Status Report

Asset Group: Carriageway (Surfaced)					
	Statistics			Commentary	
The Asset	Road Class	Urban Length (km)	Rural Length (km)	Total Length (km)	
	A Road	30.0	208.2	238.2	
	B Road	52.5	551.6	604.1	
	C Road	59.7	2,042.3	2,102.0	
	Unclassified Road	217.0	1,908.3	2,125.4	
	Total Length (km)	359.2	4,710.4	5,069.6	
Customer Expectations				<ul style="list-style-type: none"> The annual residents survey results show a general downward trend in customer satisfaction since surveys started in 2008/09. Further examination of the results reveals the main reason for dissatisfaction relates to the increase in number of pot holes. Data Note: No Surveys carried out in 2011/12 and 2014/15. 	
	Customer Contacts	Data to be assessed			<ul style="list-style-type: none"> The majority of contacts relating to carriageways are associated with potholes.

A Road Condition		<table border="1"> <tr> <td>PCC Red Condition</td> <td>2.8%</td> </tr> <tr> <td>Wales Rural Peer Group (WRPG) Average Red Condition (As at 2014/15)</td> <td>3.8%</td> </tr> <tr> <td>PCC's rank within WRPG (As at 2014/15)</td> <td>3 / 9</td> </tr> </table>	PCC Red Condition	2.8%	Wales Rural Peer Group (WRPG) Average Red Condition (As at 2014/15)	3.8%	PCC's rank within WRPG (As at 2014/15)	3 / 9
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PCC's rank within WRPG (As at 2014/15)	3 / 9							
<ul style="list-style-type: none"> The carriageway red condition level of 3.3% is considered good and is better than the average of the WRPG. 								
B Road Condition		<table border="1"> <tr> <td>PCC Red Condition</td> <td>5.2%</td> </tr> <tr> <td>WRPG Average Red Condition (As at 2014/15)</td> <td>5.3%</td> </tr> <tr> <td>PCC's rank within WRPG (As at 2014/15)</td> <td>7 / 9</td> </tr> </table>	PCC Red Condition	5.2%	WRPG Average Red Condition (As at 2014/15)	5.3%	PCC's rank within WRPG (As at 2014/15)	7 / 9
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WRPG Average Red Condition (As at 2014/15)	5.3%							
PCC's rank within WRPG (As at 2014/15)	7 / 9							
<ul style="list-style-type: none"> The carriageway red condition level of 5.2% is considered an acceptable level and is close to the average of the WRPG. 								

C Road Condition		<table border="1" style="width: 100%;"> <tr> <td style="width: 70%;">PCC Red Condition</td> <td style="text-align: right;">25.1%</td> </tr> <tr> <td>WRPG Average Red Condition (As at 2014/15)</td> <td style="text-align: right;">16.4%</td> </tr> <tr> <td>PCC's rank within WRPG (As at 2014/15)</td> <td style="text-align: right;">9 / 9</td> </tr> </table> <ul style="list-style-type: none"> • The carriageway red condition level of 25.1% is the lowest of all Welsh Local Authorities and below the WRPG average. 	PCC Red Condition	25.1%	WRPG Average Red Condition (As at 2014/15)	16.4%	PCC's rank within WRPG (As at 2014/15)	9 / 9
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WRPG Average Red Condition (As at 2014/15)	16.4%							
PCC's rank within WRPG (As at 2014/15)	9 / 9							
U Road Condition		<ul style="list-style-type: none"> • The last condition survey undertaken on unclassified roads was in 2011/12 using a 'Detailed Visual Inspection' (DVI) process. • At that time the condition was Red 30%; Amber 25%. 						
		<ul style="list-style-type: none"> • 						

Category 1 Defects	To be assessed	•
Category 2 Defects	To be assessed	•
Historical Investment	To be assessed	•

Investment and Output (2015/16)	Cost Category		£10,764k	Output
	Planned Maintenance - Preventative		£1,165k	<ul style="list-style-type: none"> • Surface Dressing (£1,165k)
	Planned Maintenance - Corrective		£3,061k	<ul style="list-style-type: none"> • Resurfacing • Major Drainage • Footways • Remedial Earthworks
	Routine Cyclic Maintenance		£4,977k	<ul style="list-style-type: none"> • Grassed areas maintained (safety & amenity) • Gullies and drains cleaned • Potentially dangerous defects repaired (e.g. potholes) • Fabric of highway repaired e.g. patching, drainage repairs • Asset inspected to identified defects, assist with work planning and provide a defence to claims
	Routine – Reactive Repairs (emergency)			
	Routine – Reactive Repairs (non-emergency)			
	Routine – Inspection & Survey			
	Operating Costs		£1,418k	<ul style="list-style-type: none"> • See Winter Maintenance Plan
	Improvements		£143k	<ul style="list-style-type: none"> • Road Safety Schemes
	Budget expenditure is recorded at the minimum level required to meet reporting criteria for Welsh Government financial returns.			
Valuation	Gross Replacement Cost		£3,922,119,000	The annualised depreciation (AD) was £25.7m which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset.
	Depreciated Replacement Cost		£3,574,927,000	
	Annualised Depreciation Charge		£25,652,000	

Asset Group: Carriageway (Surfaced)	
	Commentary
Current Strategies	<ul style="list-style-type: none"> • Planned Maintenance Strategy – potential sites for treatment are identified during routine inspections and from adhoc service demand. A priority rating is allocated to each site using the PCC Matrix which incorporates factors for the level of defects and customer and member importance. Identified highway assets schemes (capital programme) are ranked together with the highest ranking schemes being considered for Planned Maintenance funding allocations. • Reactive Maintenance Strategy - objective is to repair defects within the appropriate response times which are currently 24 hours to make safe a Category One Defect and 28 days for full repair. Category 2 defects have response times ranging from 2 months to an expectation of 24 months depending on the response category assigned.
Current Status	<p>As at 31 March 2016</p> <ul style="list-style-type: none"> ↘ annual budget decreasing over time ↘ deterioration of measured condition ! budget constraints putting pressure on corrective and reactive works ↘ decreasing customer satisfaction as a result of increasing reactive repairs.

2.3 Carriageway Options

The predictions included below have been created using a cost projection tool developed under the SCOTS.CSSW Highway Asset Management project. The projections are based upon assumed average rates of deterioration for each road class. Input condition for unclassified roads has been assumed to be as per 2011/12 DVI partial network survey as this is the only information available at this time.

The projections are aimed at providing a range of scenarios to inform discussion and assist in decision making.

2.3.1 Option C1: Maintain Current Budget and Spend Profile

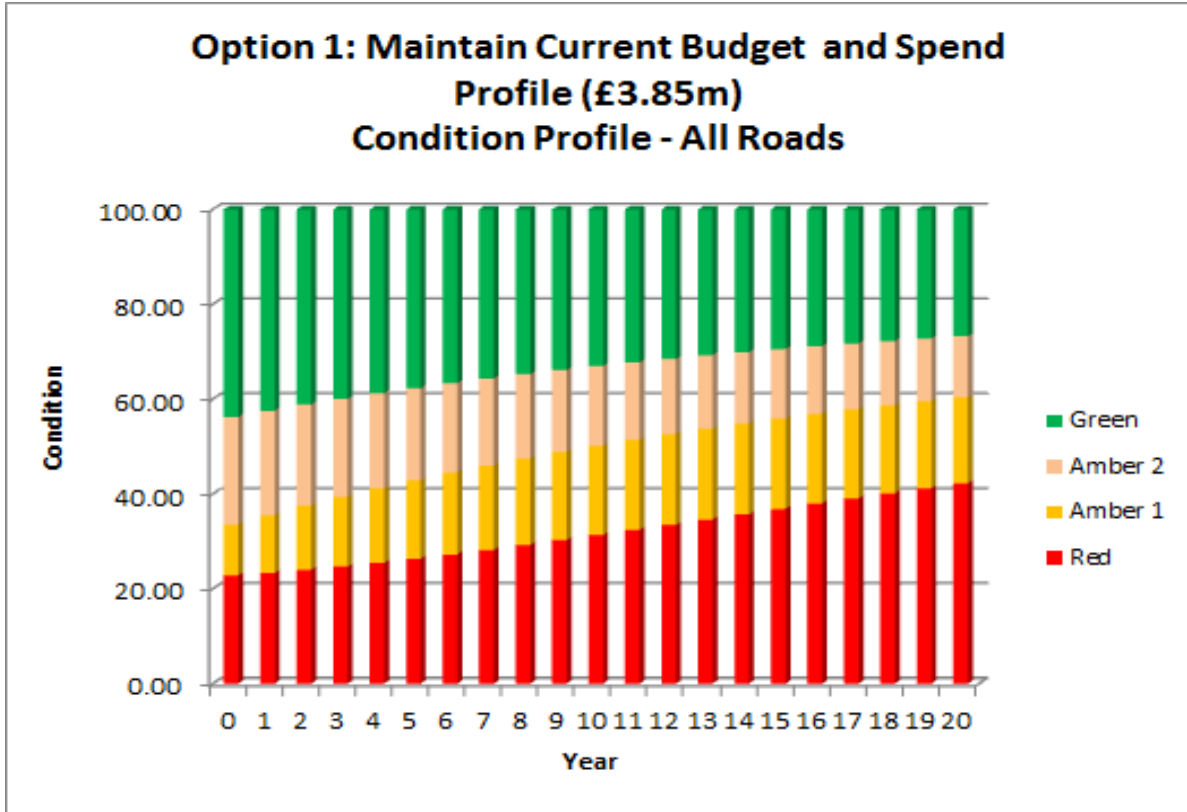
Budget

Continuance of 2015/2016 funding levels invested predominantly in resurfacing which is a longer life corrective treatment. This strategy targets the worst condition roads, red and amber 1, aiming to eliminate lengths of road where reactive defects have or are starting to appear.

The allocation between road type and treatment type is shown in the following table.

Option 1: Maintain 2015/2016 Budget and Spend Profile of £3.85m				
Annual Budget: £3,851,161 for 2015/2016, reduced to £2.67m for 2016/2017				
Road Category	Urban / Rural	Strengthening Treatment	Resurfacing Treatment	Surface Treatment
Classified (A) Roads	Urban	£0	£45,716	£97,415
	Rural	£0	£364,832	£472,038
Classified (B) Roads	Urban	£0	£239,805	£58,250
	Rural	£0	£760,309	£126,250
Classified (C) Roads	Urban	£0	£60,159	£156,019
	Rural	£0	£777,487	£113,250
Unclassified Roads	Urban	£0	£258,037	£83,528
	Rural	£0	£179,817	£58,250
Treatment Totals		£0	£2,686,161	£1,165,000

Predicted Condition



The predicted condition chart shows that this option will lead to continued deterioration of the carriageways over time resulting in the percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 56% to 73% in 20 years. The red condition will increase from 23% to 42%

Option C1 Summary

The baseline option of a continuance of 2015/2016 funding levels is predicted to result in:

- ↘ deterioration of measured condition
- ↗ increasing quantities of defects
- ↗ potential for increase in 3rd party claims
- ↘ probable reduction in customer satisfaction as a result of increased defects and reduction of service.

2.3.2 Option C2: Maintain Current Budget using Preventative Strategy

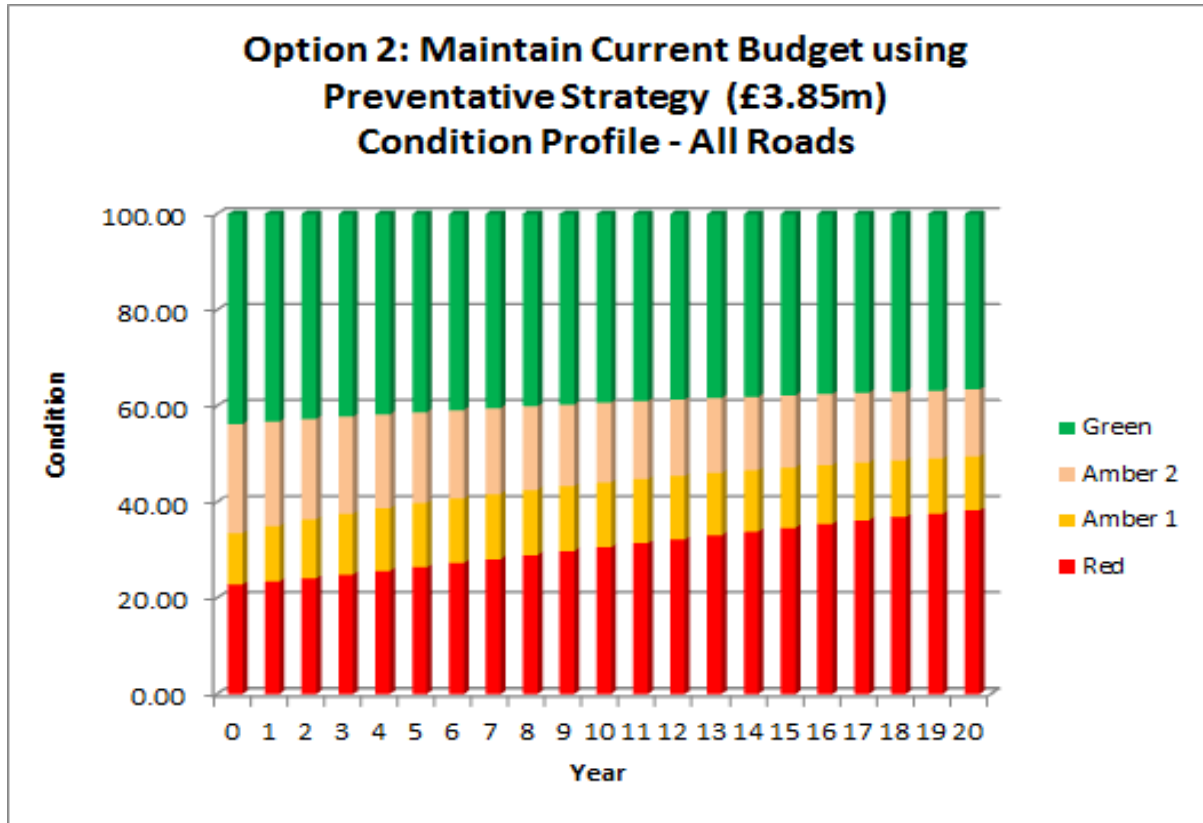
Budget

Continuance of 2015/2016 funding levels invested predominantly in surface dressing which is a shorter life preventative treatment. This strategy targets amber condition roads aiming to extend the life by treating defects before they reach a level where corrective treatment is required.

The allocation between road type and treatment type is shown in the following table.

Option 2: Maintain Current Budget Using Preventative Strategy (£3.85m)				
Annual Budget: £3,851,161				
Road Category	Urban / Rural	Strengthening Treatment	Resurfacing Treatment	Surface Treatment
Principal (A) Roads	Urban	£8,000	£34,939	£100,192
	Rural	£70,000	£294,832	£472,038
Classified (B) Roads	Urban	£20,000	£219,805	£58,250
	Rural	£88,656	£177,312	£620,591
Classified (C) Roads	Urban	£21,618	£43,236	£151,325
	Rural	£89,074	£178,147	£623,516
Unclassified Roads	Urban	£34,157	£68,313	£239,096
	Rural	£23,807	£47,613	£166,647
Treatment Totals		£355,311	£1,064,197	£2,431,653

Predicted Condition



The predicted condition chart shows that this option will lead to continued deterioration of the carriageways over time resulting in the percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 56% to 63% in 20 years. The red condition will increase from 23% to 38%

Option C2 Summary

The option of a continuance of current funding levels using a preventative strategy is predicted to result in:

- ↘ deterioration of measured condition
- ↗ increasing quantities of defects
- ↗ potential for increase in 3rd party claims
- ↘ probable reduction in customer satisfaction as a result of increased pavement defects.

2.3.3 Option C3: Maintain Current Condition using a Preventative Strategy

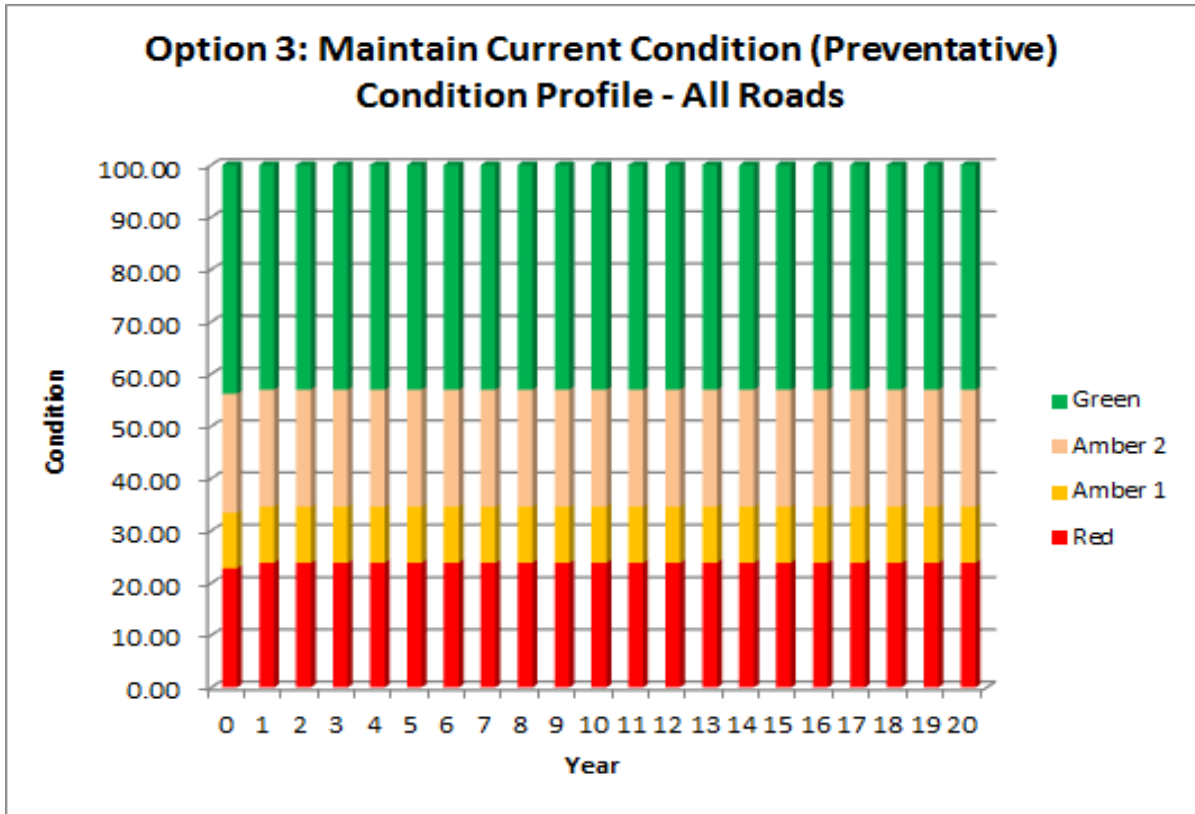
Budget

Investing a level of budget to maintain the current condition level. The maintenance strategy for this option will be preventative where current carriageway condition is always treated before deteriorating to the next level of condition.

The allocation between road type and treatment type is shown in the following table.

Option 3: Maintain Current Condition (Preventative)				
Annual Budget: £8,217,131				
Road Category	Urban / Rural	Strengthening Treatment	Resurfacing Treatment	Surface Treatment
Principal (A) Roads	Urban	£0	£29,409	£100,320
	Rural	£0	£254,420	£471,142
Classified (B) Roads	Urban	£0	£44,197	£127,898
	Rural	£0	£328,923	£462,323
Classified (C) Roads	Urban	£0	£97,045	£37,490
	Rural	£0	£3,003,662	£497,301
Unclassified Roads	Urban	£0	£273,546	£151,580
	Rural	£0	£1,889,217	£448,659
Treatment Totals		£0	£5,920,419	£2,296,712

Predicted Condition



This shows the condition of the carriageways remaining the same over time.

Option C3 Summary

The option of maintaining the current condition is predicted to result in:

- continuation of measured condition
- no increase in quantities of defects
- lower potential for an increase in level of successful 3rd party claims
- no probable change in customer satisfaction (assuming no increase in customer expectation)

2.3.4 Option C4: Invest Option 3 Budget using PCC's Current Strategy

Budget

The fourth option comprises investing the Option 3 'steady state' budget, using the current Powys County Council strategy which is described in Option 1.

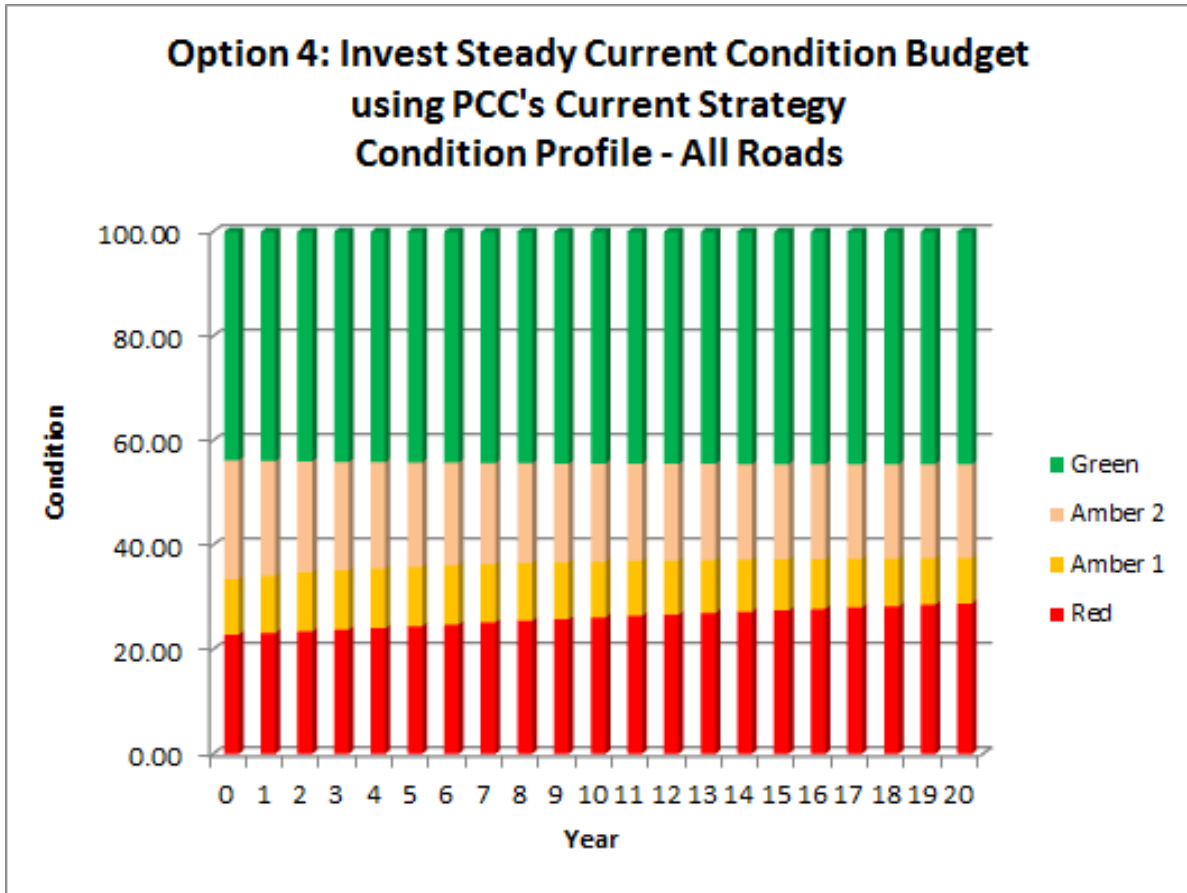
These increased budgets on several of the road types are greater than needed over a 20 year period causing a 'surplus' in the model. In the analysis when this situation occurred the 'surplus' budget was transferred as follows:

- i. to the other road type ie. urban or rural within the road category eg. if surplus occurs in A Road Urban it is transferred to A Road Rural.
- ii. to C Road Rural.

The allocation between road type and treatment type is shown in the following table.

Option 4: Invest Option 3 Budget using PCC's Current Strategy				
Annual Budget: £8,217,131				
Road Category	Urban / Rural	Strengthening Treatment	Resurfacing Treatment	Surface Treatment
Principal (A) Roads	Urban	£0	£44,689	£98,626
	Rural	£0	£301,698	£494,492
Classified (B) Roads	Urban	£0	£91,751	£117,287
	Rural	£0	£1,971,757	£131,287
Classified (C) Roads	Urban	£0	£62,988	£150,246
	Rural	£0	£2,324,277	£1,191,287
Unclassified Roads	Urban	£0	£470,567	£178,222
	Rural	£0	£463,671	£124,287
Treatment Totals		£0	£5,731,398	£2,485,733

Predicted Condition



The condition chart shows that this option will maintain the overall percentage of carriageway in need of maintenance (red + amber condition) at 56% over the 20 year period.

The level of red condition will rise from 23% to 29% over this period.

Option C4 Summary

The option of using the ‘steady state’ budget following PCC’s current strategy is predicted to result in:

- ↘ continuation of measured red condition
- ↗ increasing quantities of defects
- ↗ potential for increase in 3rd party claims
- ↘ probable reduction in customer satisfaction as a result of increased pavement defects

2.3.5 Option C5: Based on outturn condition criteria as detailed below (£5.3m)

Budget

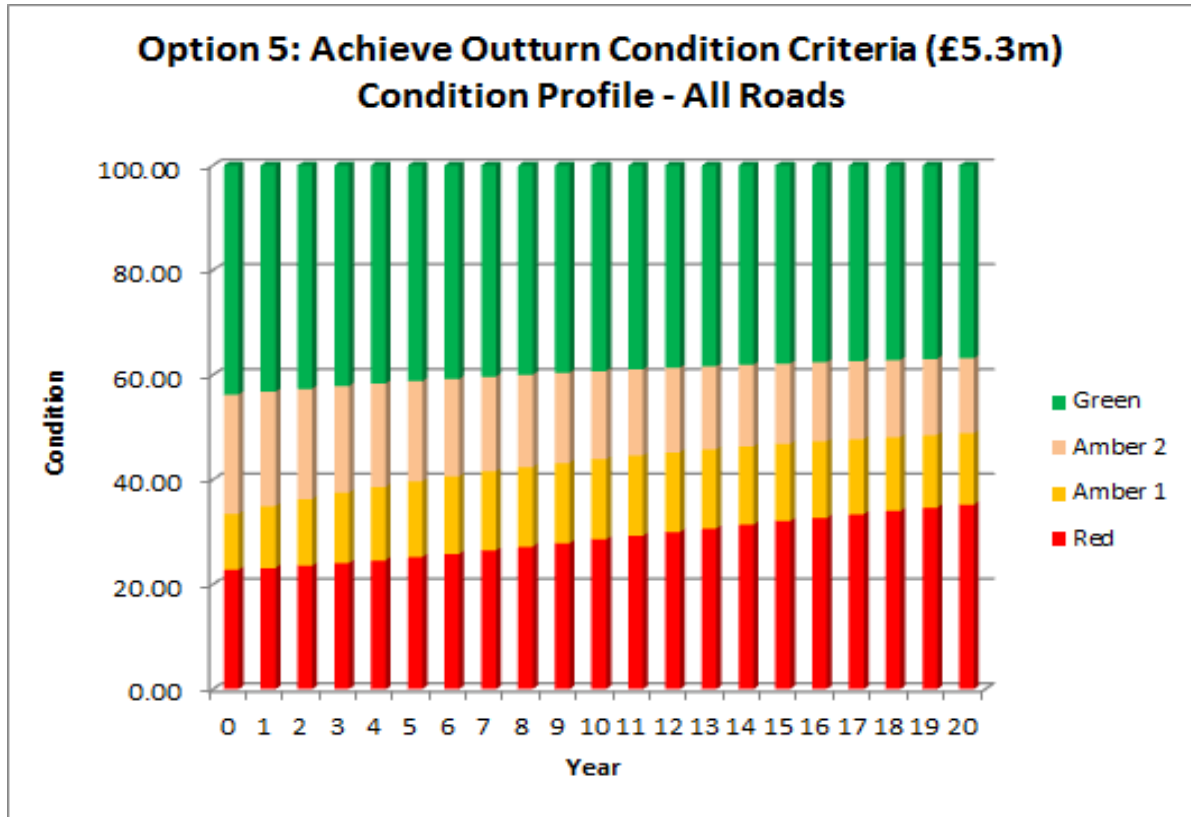
The fifth option investigates the budget required to meet the outturn condition criteria as specified resulting in an increased budget of £5.3m.

- i. A Urban and B Urban – the % of red condition carriageway was allowed to deteriorate to 10% over the 20 year period.
- ii. A Rural and B Rural – the % of red condition carriageway was allowed to deteriorate to 20% over the 20 year period.
- iii. C Urban and U Urban – the % of red condition carriageway was allowed to deteriorate to 30% over the 20 year period.
- iv. C Rural and U Rural – the % of red condition carriageway was allowed to deteriorate to 40% over the 20 year period.

The allocation between road type and treatment type is shown in the following table.

Option 5: Achieve Outturn Condition Criteria (£5.3m)				
Annual Budget: £5,292,191				
Road Category	Urban / Rural	Strengthening Treatment	Resurfacing Treatment	Surface Treatment
Principal (A) Roads	Urban	£0	£25,300	£75,900
	Rural	£0	£97,400	£292,200
Classified (B) Roads	Urban	£0	£34,500	£103,500
	Rural	£0	£91,000	£273,000
Classified (C) Roads	Urban	£0	£126,600	£37,490
	Rural	£0	£2,125,000	£497,301
Unclassified Roads	Urban	£51,000	£250,000	£100,000
	Rural	£0	£612,000	£500,000
Treatment Totals		£51,000	£3,361,800	£1,879,391

Predicted Condition



The condition chart shows that this option will lead to continued deterioration of the carriageways over time resulting in the percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 56% to 63% in 20 years.

With the red condition increasing from 23% to 35%

Option C5 Summary

The option of achieving the outturn condition criteria as detailed above is predicted to result in:

- ↘ deterioration of measured condition
- ↗ increasing quantities of defects
- ↗ potential for increase in 3rd party claims
- ↘ probable reduction in customer satisfaction as a result of increased pavement defects.

2.3.6 Summary of Options

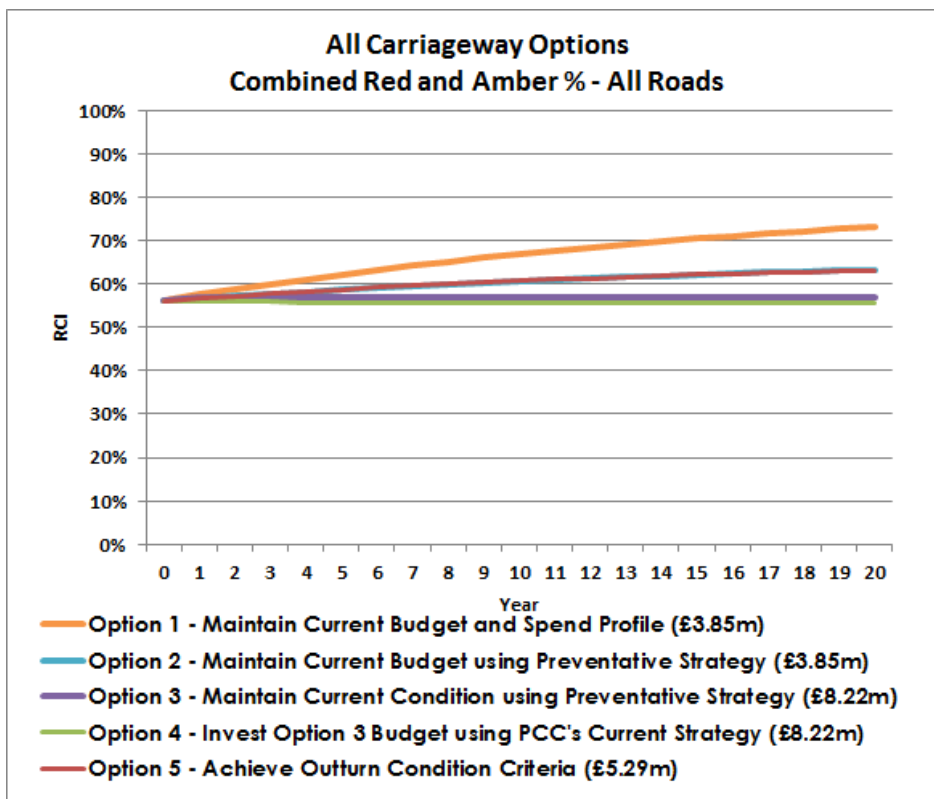
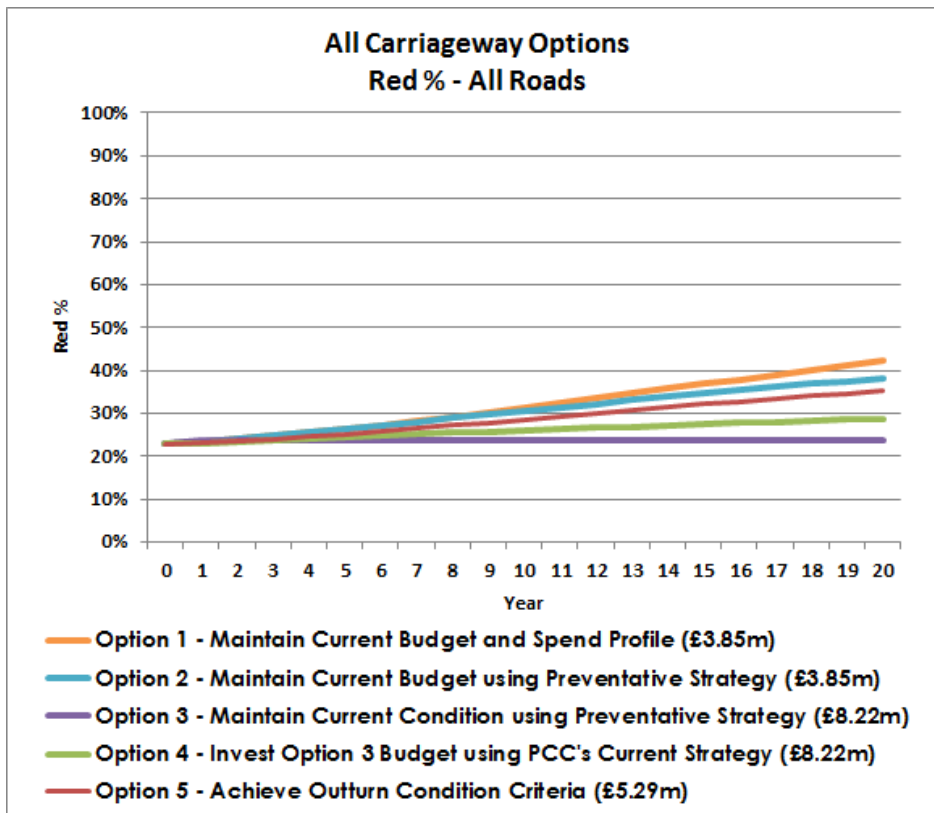


Chart Note: Options C2 and C5 produce broadly comparable results

Current Budget (Option C1 and C2)

Both options indicate that based upon this model the current funding level of £3.85m is not sufficient to maintain condition in the long term. i.e. ongoing deterioration is predicted.

The model predicted that after 20 years the Option C2 strategy of undertaking lower cost preventative treatments would have 10% less roads requiring maintenance and 4% less roads in a red condition than the current longer term resurfacing strategy (Option C1).

Steady State Budget (Option C3 and C4)

A preventative steady state budget which aims to maintain the current level of condition was calculated at £8.22m which is significantly higher than the current budget. Option C4 invests this same £8.22m using the current resurfacing strategy. The predicted results from the model show that after 20 years the quantity of carriageway in need of maintenance remains the same but the level of red condition increases by 7%.

Increased Red Condition Target Budget (Option C5)

The objective of Option C5 was to assess the costs of letting the current red proportions increase to service levels considered still acceptable. The steady state budget calculated in Option C3 is over twice the current budget and is therefore unlikely to be provided. The Option C5 budget of £5.2m is 35% higher than the current budget. It is predicted with this level of funding that the overall red % would only increase by 12% compared to 19% with the current investment.

In the long term there may be benefit in adopting a greater focus on preventative, early intervention treatments. These lower cost treatment would prevent roads deteriorating into a bad condition and thus would be beneficial in terms of minimising defect requiring reactive repair and reducing the average cost of treatment for resurfacing /renewal.

Applying such a strategy to existing funding levels however is predicted to have only a nominal effect due to the low level of funding being put into planned works (resurfacing etc).

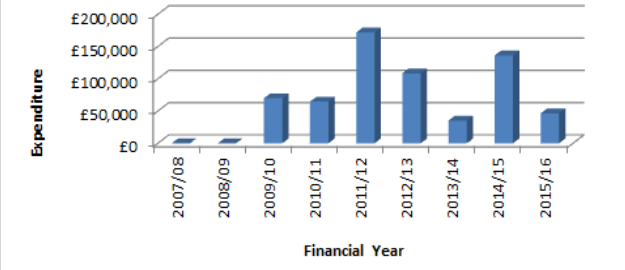
3 Footways

3.1 Key Issues

<ol style="list-style-type: none"> 1. There is no inventory 2. There is no condition data 3. All costs associated with footways are recorded in carriageway budget codes so there is no knowledge of what level of service is currently provided. 4. The current planned maintenance return periods for footways is 318 years based on estimated inventory and condition.

3.2 Status Report

Asset Group: Footways					
	Statistics				Commentary
The Asset	Footway / Cycleway Quantities				<ul style="list-style-type: none"> • Actual footway inventory is unknown. • The quantity of footway length has been estimated as 10% of the carriageway length for valuation purposes. (Whole of Government Accounts GRC only)
	Type	Length (m)	Width (m)	Total (m ²)	
	Footways	581,120	2.00	1,162,240	
	Cycleways	10,606	2.00	21,212	
Customer Contacts	To be assessed				<ul style="list-style-type: none"> •
Condition	To be assessed				<ul style="list-style-type: none"> • Powys County Council have no footway condition data. • This information is a requirement for valuation purposes. In the most recent valuation no condition information was provided.
Category 1 Defects	To be assessed				<ul style="list-style-type: none"> •

Asset Group: Footways																						
	Statistics	Commentary																				
Category 2 Defects	To be assessed	<ul style="list-style-type: none"> 																				
Historical Investment	<p style="text-align: center;">Historical Capital Expenditure - Footways</p>  <table border="1"> <caption>Historical Capital Expenditure - Footways</caption> <thead> <tr> <th>Financial Year</th> <th>Expenditure (£)</th> </tr> </thead> <tbody> <tr><td>2007/08</td><td>10,000</td></tr> <tr><td>2008/09</td><td>10,000</td></tr> <tr><td>2009/10</td><td>80,000</td></tr> <tr><td>2010/11</td><td>75,000</td></tr> <tr><td>2011/12</td><td>180,000</td></tr> <tr><td>2012/13</td><td>120,000</td></tr> <tr><td>2013/14</td><td>50,000</td></tr> <tr><td>2014/15</td><td>150,000</td></tr> <tr><td>2015/16</td><td>60,000</td></tr> </tbody> </table>	Financial Year	Expenditure (£)	2007/08	10,000	2008/09	10,000	2009/10	80,000	2010/11	75,000	2011/12	180,000	2012/13	120,000	2013/14	50,000	2014/15	150,000	2015/16	60,000	<ul style="list-style-type: none"> There is no consistent annual capital budget allocated to footways. The level of budget allocated depends on how the footway schemes priority score compares with the other assets. All reactive costs are included in the carriageway historical expenditure chart. PCC fund all reactive works out of the same budget code and it is not possible to breakdown costs to specific assets.
Financial Year	Expenditure (£)																					
2007/08	10,000																					
2008/09	10,000																					
2009/10	80,000																					
2010/11	75,000																					
2011/12	180,000																					
2012/13	120,000																					
2013/14	50,000																					
2014/15	150,000																					
2015/16	60,000																					
Valuation	<table border="1"> <tbody> <tr> <td>Gross Replacement Cost</td> <td style="text-align: right;">£118,345,000</td> </tr> <tr> <td>Depreciated Replacement Cost</td> <td style="text-align: right;">£94,676,000</td> </tr> <tr> <td>Annualised Depreciation Charge</td> <td style="text-align: right;">£592,000</td> </tr> </tbody> </table>	Gross Replacement Cost	£118,345,000	Depreciated Replacement Cost	£94,676,000	Annualised Depreciation Charge	£592,000	<ul style="list-style-type: none"> No actual or estimated condition information was inserted into the Valuation Toolkit for footways. The resulting depreciation value reflects that the surface layer is fully depreciated. The annualised depreciation (AD) was £592k which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset. These figures are speculative due to the absence of real inventory and condition data. 														
Gross Replacement Cost	£118,345,000																					
Depreciated Replacement Cost	£94,676,000																					
Annualised Depreciation Charge	£592,000																					

Asset Group: Footways	
	Commentary
Current Strategies	<ul style="list-style-type: none"> • Planned Maintenance Strategy – potential sites for treatment are identified during routine inspections and from ad-hoc service demand. A priority rating is allocated to each site using the PCC Matrix which incorporates factors for the level of defects and customer and member importance. Identified highway assets schemes (capital programme) are ranked together with the highest ranking schemes being considered for Planned Maintenance funding allocations. • Reactive Maintenance Strategy - objective is to repair defects within the appropriate response times which are currently 24 hours to make safe a Category One Defect and 28 days for full repair. Category 2 defects have response times ranging from 2 months to an expectation of 24 months depending on the response category assigned.
Current Status	<p>As at 31 March 2016</p> <ul style="list-style-type: none"> ↗ increasing quantities of defects ↗ potential for increase in 3rd party claims ↘ probable reduction in customer satisfaction as a result of increased reactive repairs.

3.3 Footways Options

3.3.1 Planned Maintenance

The predictions included below have been created using a cost projection tool developed under the SCOTS.CSSW Highway Asset Management project. The projections are based upon assumed rates of deterioration for each material type. There is no inventory or condition data so the following assumptions have been made:

- i. The inventory quantity is assumed to be 10% of the carriageway length
- ii. The condition information is based on authorities who have undertaken condition surveys which have similar characteristics to Powys. The selected condition profile is as follows:

Condition 1	Condition 2	Condition 3	Condition 4
28%	52%	16%	4%

Note: Data is from other authorities with similar network to Powys

3.3.2 Option F1: Maintain Current Budget and Spend Profile

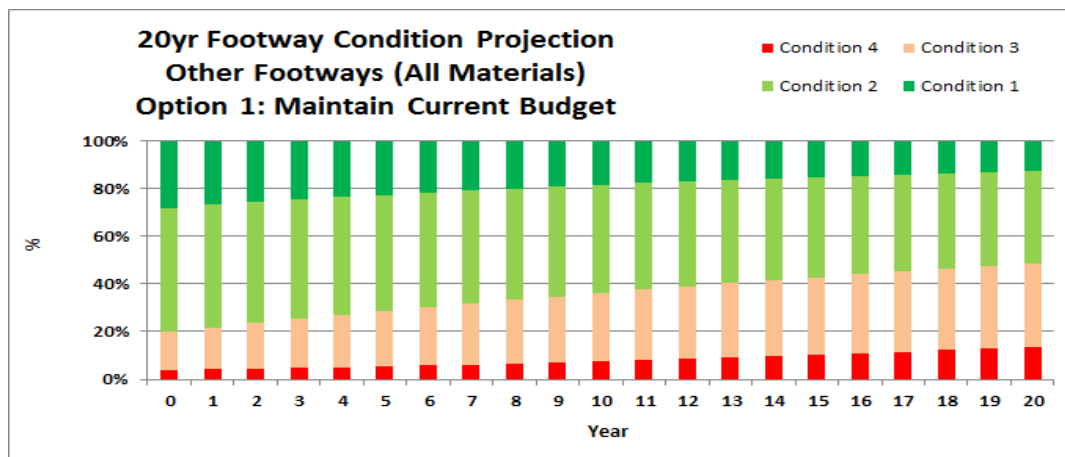
Budget

Continuance of current funding levels invested predominantly in resurfacing which is a longer life corrective treatment. This strategy targets the worst condition footways, Condition 4, aiming to eliminate lengths of footways where reactive defects have or are starting to appear.

The allocation of the budget is shown in the following table.

Option 1: Maintain Current Budget and Spend Profile (£46k)			
Annual Budget: £46,000			
Footway Material	Condition 2	Condition 3	Condition 4
Bituminous	£0	£0	£46,000
Treatment Totals	£0	£0	£46,000

Predicted Condition



The predicted condition chart shows that this option will lead to continued deterioration of the footways over time resulting in the percentage of footway in need of maintenance (Condition 3 & 4) increasing from the current 20% to 49% in 20 years. With the red condition increasing from 4% to 14%.

Option Summary

The baseline option of a continuance of current funding levels is predicted to result in:

- ↘ deterioration of measured condition
- ↗ increasing quantities of defects
- ↗ potential for increase in 3rd party claims
- ↘ probable reduction in customer satisfaction as a result of increased pavement defects.

3.3.3 Option F2: Maintain Current Condition using a Preventative Strategy

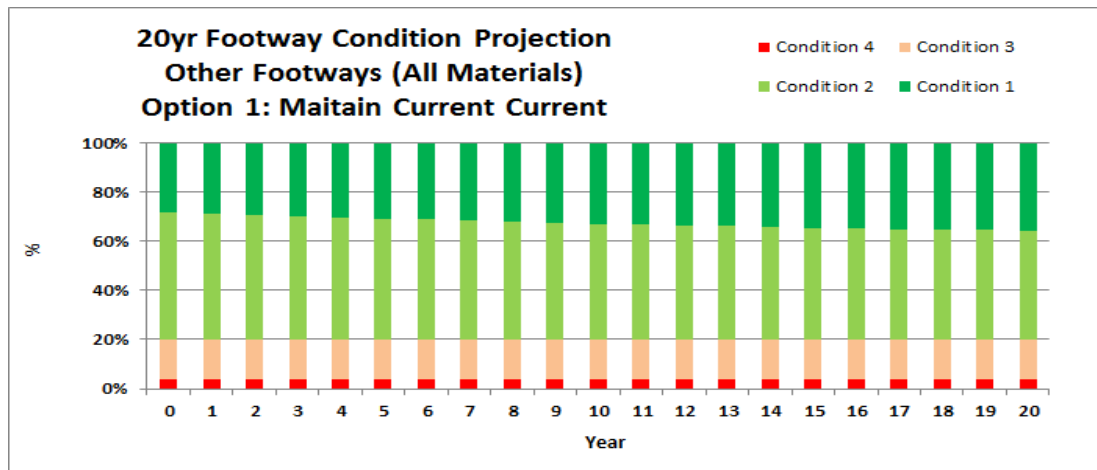
Budget

Investing a level of budget to maintain the current condition level. The maintenance strategy for this option will be preventative where current footway condition is always treated before deteriorating to the next level of condition.

The allocation of the budget is shown in the following table.

Option 2: Maintain Current Condition using a Preventative Strategy (£285k)			
Annual Budget: £46,000			
Footway Material	Condition 2	Condition 3	Condition 4
Bituminous	£60,000	£225,000	£0
Treatment Totals	£60,000	£225,000	£0

Predicted Condition



For this option Condition 3 and 4 footways would remain the same over time.

Note: it is not possible to model when footways change from condition 1 (as new) to condition 2 (aesthetically unpleasing). Therefore in this option they are not maintained at the same level over the 20 year analysis period.

Option Summary

The option of maintaining the current condition is predicted to result in:

- continuation of measured condition
- no increase in quantities of defects
- lower potential for an increase in level of successful 3rd party claims
- no probable change in customer satisfaction

Appendix

Carriageway Cost Projection Method

The model uses approximate local treatment rates to determine the amount of carriageway that can be renewed for given budgets. Budgets are split into 3 generic categories:

1. Strengthening: treatment of roads in the most deteriorated condition requiring a deep inlay/overlay or reconstruction (or a combination of these). These treatment address predominantly red condition
2. Resurfacing: treatment of roads where the surface is replaced either by inlay or overlay of the existing surface. These treatments address predominantly “deep amber” condition.
3. Surface Treatment: treatment of the surface of a road by the application of a thin surfacing on top of the existing surface. These treatment address predominantly “light amber” condition i.e. roads in the early stages of deterioration.

The use of these treatments allows options to consider not only the effect of different levels of funding but also the effect of differing uses of available funding.

The rates used by this model are shown below:

Road Type	Urban / Rural	Strengthening Unit Rate (£/m ²)	Resurfacing Unit Rate (£/m ²)	Surface Treatment Unit Rate (£/m ²)
Classified A Roads	Urban	£20.00	£20.00	£7.00
	Rural	£20.00	£20.00	£3.80
Classified B Roads	Urban	£20.00	£20.00	£7.00
	Rural	£20.00	£20.00	£3.40
Classified C Roads	Urban	£20.00	£20.00	£7.00
	Rural	£20.00	£20.00	£3.00
Unclassified Roads	Urban	£20.00	£20.00	£7.00
	Rural	£20.00	£20.00	£3.00

Footway Cost Projection Method

The model uses approximate local treatment rates to determine the amount of footway that can be renewed for given budgets. Each material type has an individual treatment allocated for each of the three condition categories (Condition 2, 3 and 4).

The use of these treatments allows options to consider not only the effect of different levels of funding but also the effect of differing uses of available funding.

The treatments and rates are shown in the following table:

Material Type	Condition 2		Condition 3		Condition 4	
	Treatment	Unit Rate (£/m ²)	Treatment	Unit Rate (£/m ²)	Treatment	Unit Rate (£/m ²)
Bituminous	Slurry Seal	£5.00	Overlay	£20.00	Resurface	£20.00
PC Slabs	Relay PC Slabs	£20.00	Relay PC Slabs	£20.00	Replace PC Slabs	£20.00
Stone	Relay Stone	£20.00	Relay Stone	£20.00	Replace Stone	£20.00
Concrete	Replace Concrete	£20.00	Replace Concrete	£20.00	Replace Concrete	£20.00
PC Blocks	Relay PC Blocks	£20.00	Relay PC Blocks	£20.00	Replace PC Blocks	£20.00

PC = Pre-cast Concrete