The Future of our Highway Network

MARCUS LLOYD

B.Eng, MBA, C.Eng, MICE, MCIHT, MCMI

HEAD OF INFRASTRUCTURE

CAERPHILLY COUNTY BOROUGH COUNCIL

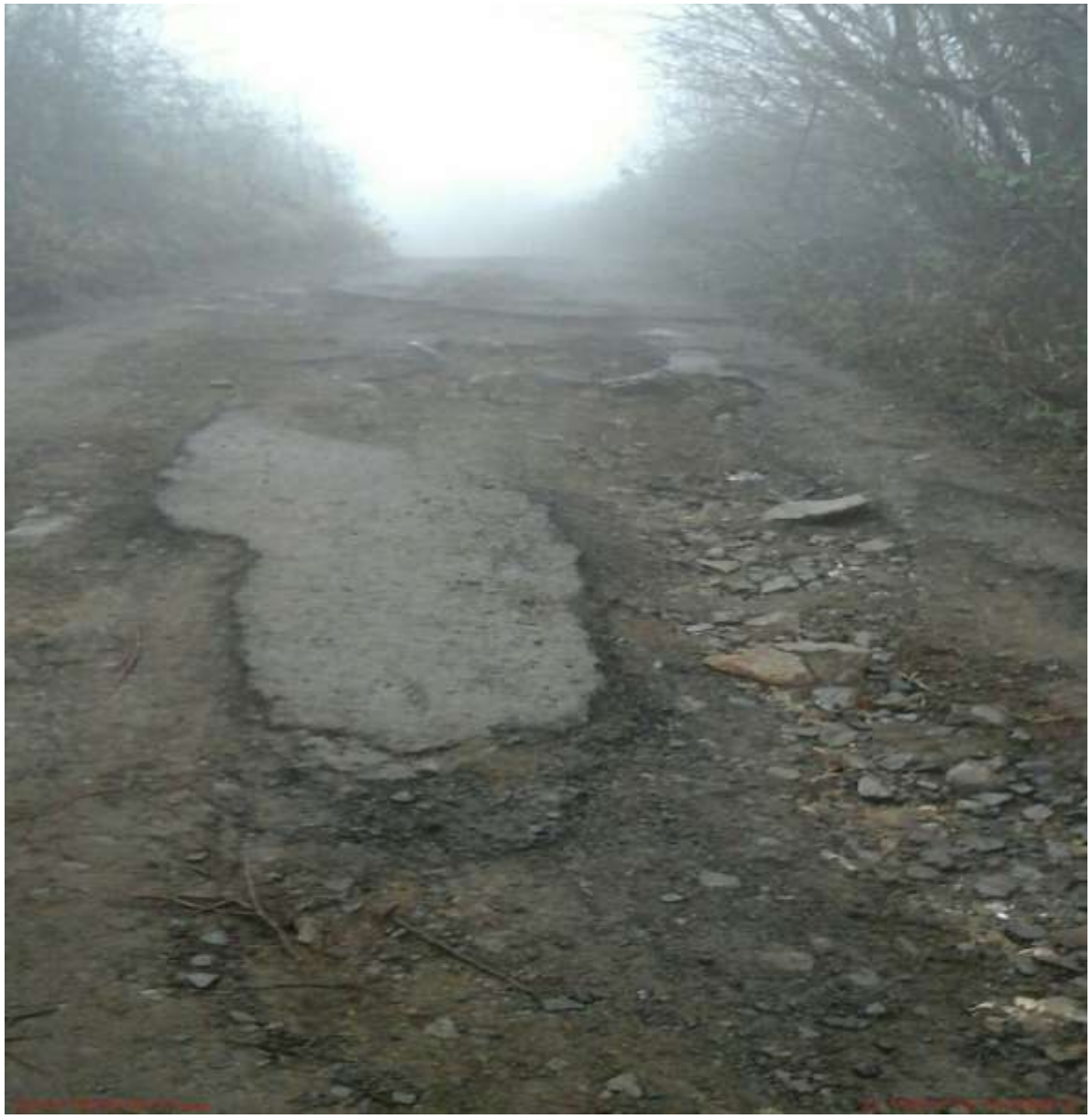
A greener place
Man gwyrddach

CAERPHILLY
COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL
CAERFFILI

The Future of our Highway Network

The Future of our Highway Network

The Future of our Highway Network



Context

CCBC Highway Asset is valued at approx. £2BN.

Main Assets

- 1176km of carriageway
- 2034km of footway
- 32,433 gullies
- 27,090 street lighting columns
- 116 road bridges
- 89 footbridges
- 343 retaining walls (over 4km)
- 220 culverts minimum diameter 900mm (approx. 20km)
- 37 traffic signal junctions
- 42 Pedestrian crossings

Plus many other assets.

Authority Budget Savings

AUTHORITY 2019/20 REVENUE BUDGET
£337M

OVER £100M SAVED

OVER THE LAST 10 YEARS

Highway Budget Cuts

2014/15 Budget Circa £16m

2019/20 Budget Circa £10m

£6m Cut in budget

A saving of approximately **38%**

Annual Depreciated Value

Highway Assets Annual Depreciated Value £17.5m

Budget £10m

Shortfall £7.5m

Annual Depreciated Value Carriageways £10.5m

Current Carriageway Budget (2019/20) £1.8m

Shortfall £8.7m

Other Funding

Welsh Government One off grants – not guaranteed

Local Authority One off capital allocations – other high priority competing demands

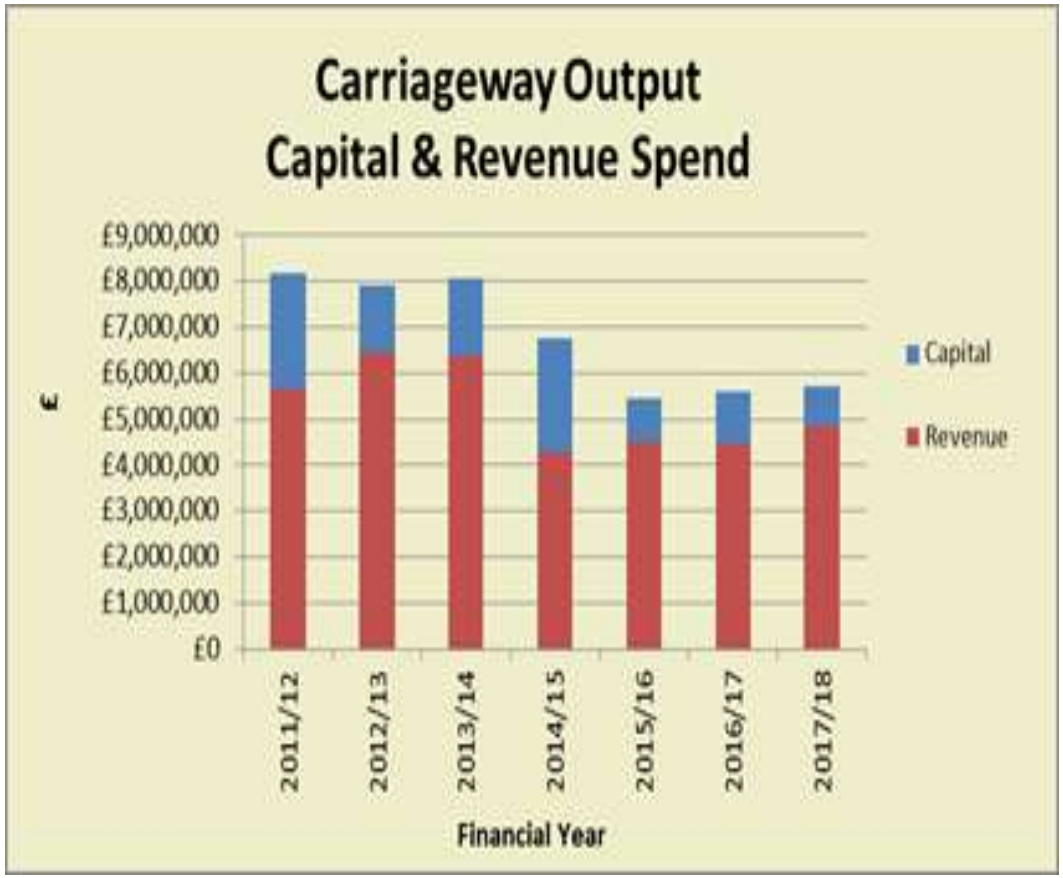
Current Approach - Not sustainable in long term

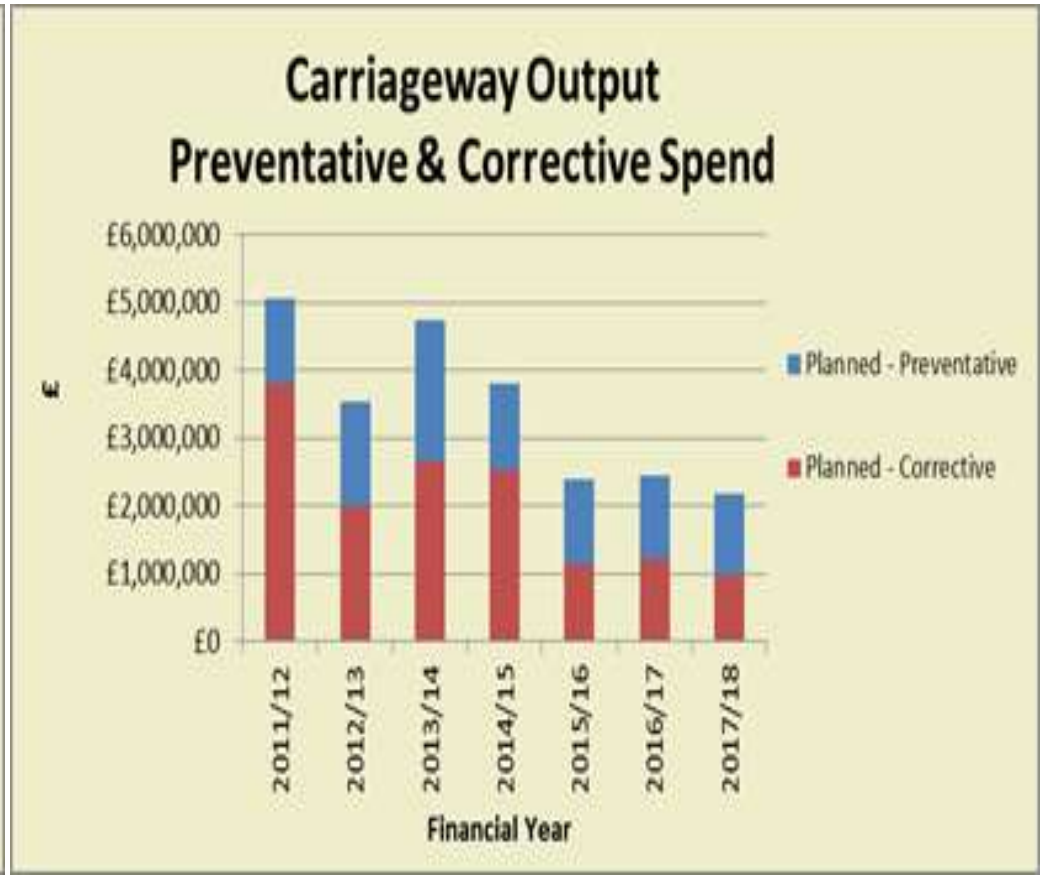
Highway Asset Management

HAMP

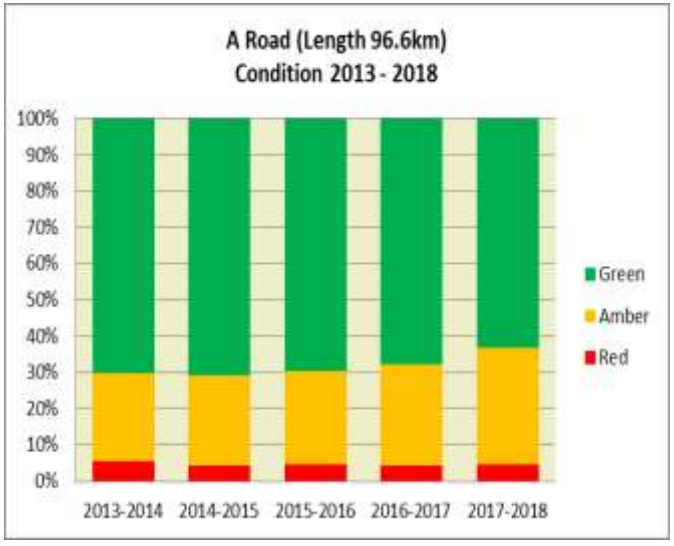
Welsh local authorities via CSS Wales have been working on developing an Asset Management approach to provide tools to allow LA’s to consider how differing investment scenarios affect the long term road condition.

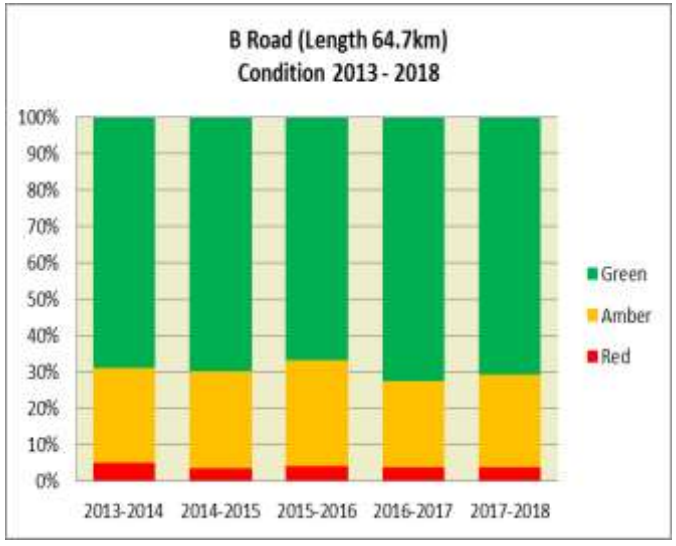
Carriageway Planned Spend

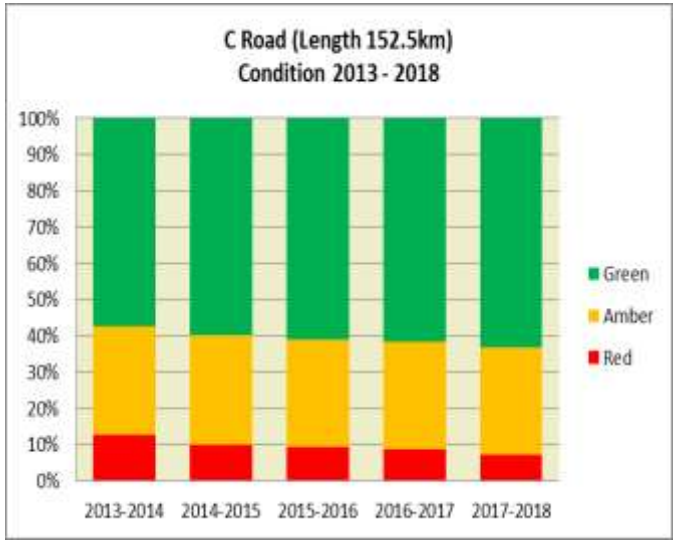


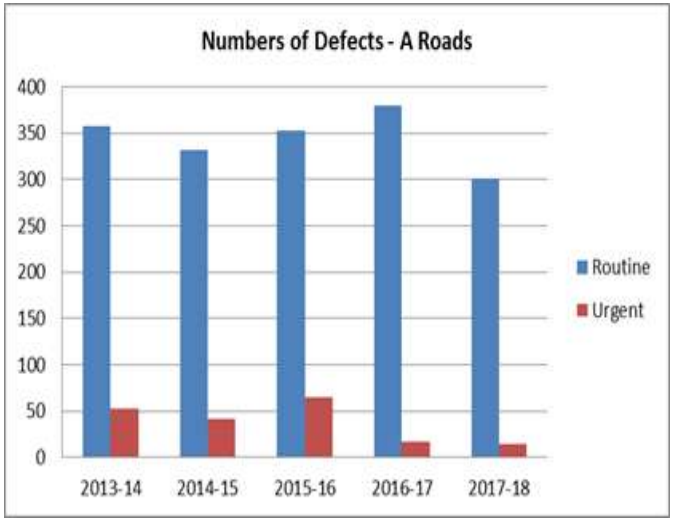


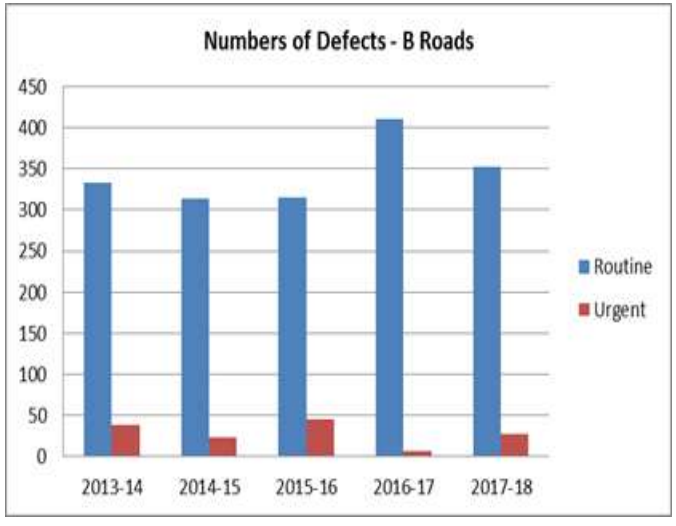
Road Condition

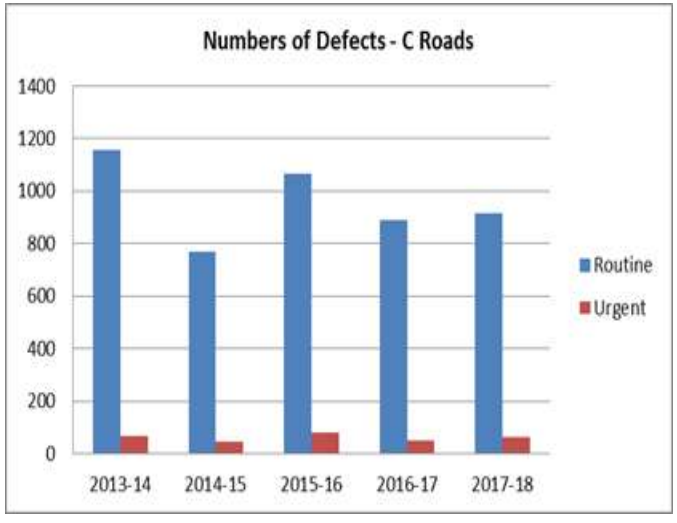












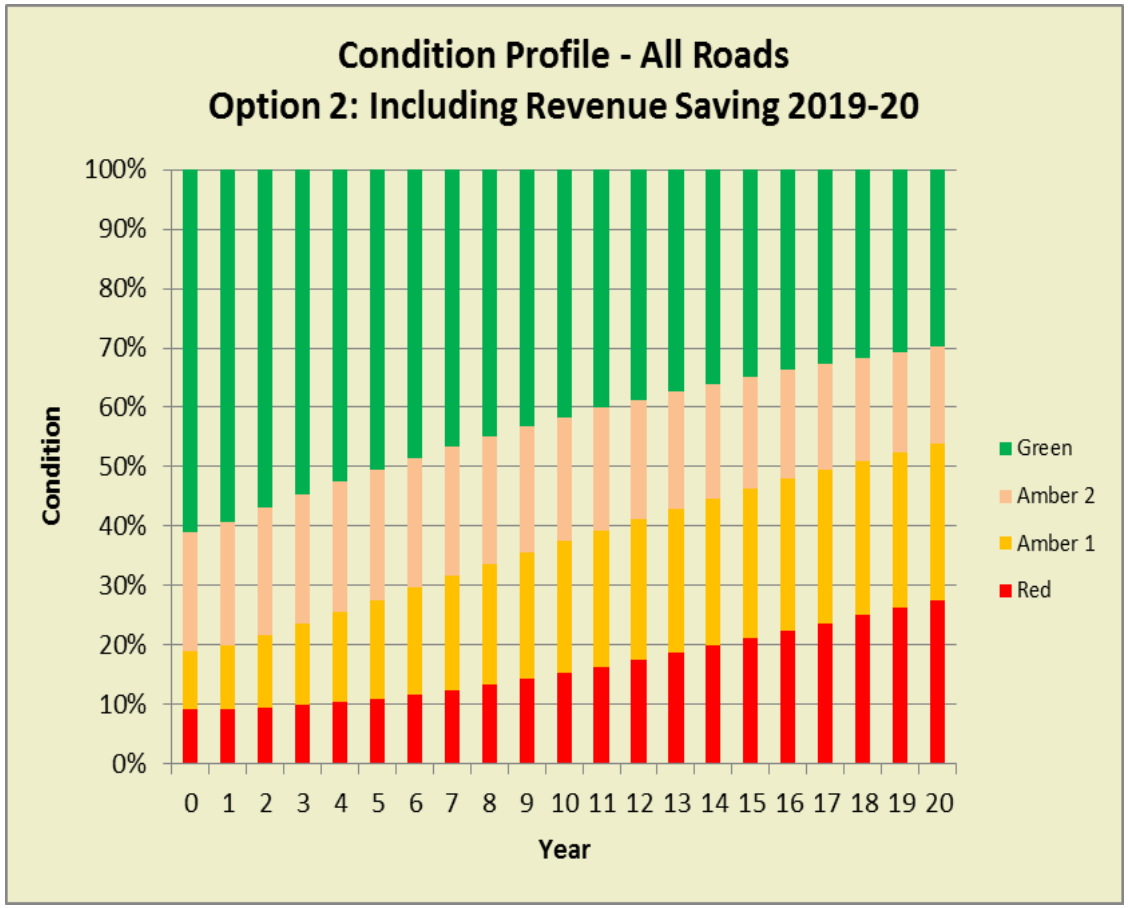
Road Condition Data

	PAM/020			PAM/021			PAM/022		
Highway Services	Kilometres of principal A roads in overall poor condition	Kilometres of principal A roads surveyed	Percentage of principal A roads that are in overall poor condition	Kilometres of B roads in overall poor condition	Kilometres of B roads surveyed	Percentage of B roads that are in overall poor condition	Kilometres of C roads in overall poor condition	Kilometres of C roads surveyed	Percentage of C roads that are in overall poor condition
Isle of Anglesey	8	272	2.9	9	236	3.8	32	368	8.7
Gwynedd	20	617	3.3	15	396	3.9	256	1,765	14.5
Conwy	9	220	3.9	20	341	5.8	93	608	15.4
Denbighshire	9	263	3.4	13	279	4.7	34	415	8.2
Flintshire	5	291	1.7	2	150	1.4	29	511	5.8
Wrexham	7	205	3.3	8	287	2.6	120	745	16.2
Powys	18	472	3.9	63	1,197	5.3	892	4,123	21.6
Ceredigion	15	312	4.7	22	641	3.5	279	1,612	17.3
Pembrokeshire	15	306	4.8	25	447	5.6	162	1,813	8.9
Carmarthenshire	25	480	5.2	27	643	4.2	312	2,493	12.5
Swansea	8	192	4.1	9	183	5.1	15	223	6.9
Neath Port Talbot	12	230	5.2	4	122	3.3	5	102	4.9
Bridgend	8	191	4.0	2	62	3.9	16	202	8.0
The Vale of Glamorgan	9	135	6.3	5	119	4.1	30	314	9.7
Cardiff	6	166	3.5	2	41	4.7	10	177	5.8
Rhondda Cynon Taf	15	299	4.9	9	131	6.5	4	145	3.0
Merthyr Tydfil	2	43	3.6	1	21	6.2	3	69	4.1
Caerphilly	6	147	3.9	4	119	3.4	18	270	6.6
Blaenau Gwent	2	80	2.6	2	41	5.6	4	82	5.5
Torfaen	1	46	2.5	2	37	4.8	6	113	5.1
Monmouthshire	3	110	2.7	14	297	4.7	43	588	7.3
Newport	2	66	2.3	4	87	4.2	19	274	6.9
Wales	202	5,144	3.9	262	5,876	4.5	2,383	17,011	14.0

Road Condition Unclassified Roads

- Length of unclassified roads is 857.9km (72% of network)
- Partial SCANNER survey covering 18% of unclassified network conducted in 2012 illustrated that 10.8% was in a poor (red) condition
- Current SCANNER survey data unavailable therefore no up to date condition information
- Over 75% of all carriageway defects repaired are on the unclassified network
- In 2018/19 only 4.2% of the unclassified network was resurfaced using preventative methods
- No strengthening works undertaken or planned

Maintain Current CCBC Budget but no WG Grant Allocation After Year One



Funding included in this option:

Resurfacing

WG Grant - £980,000 (for year 1 only)

CCBC Capital - £739,000

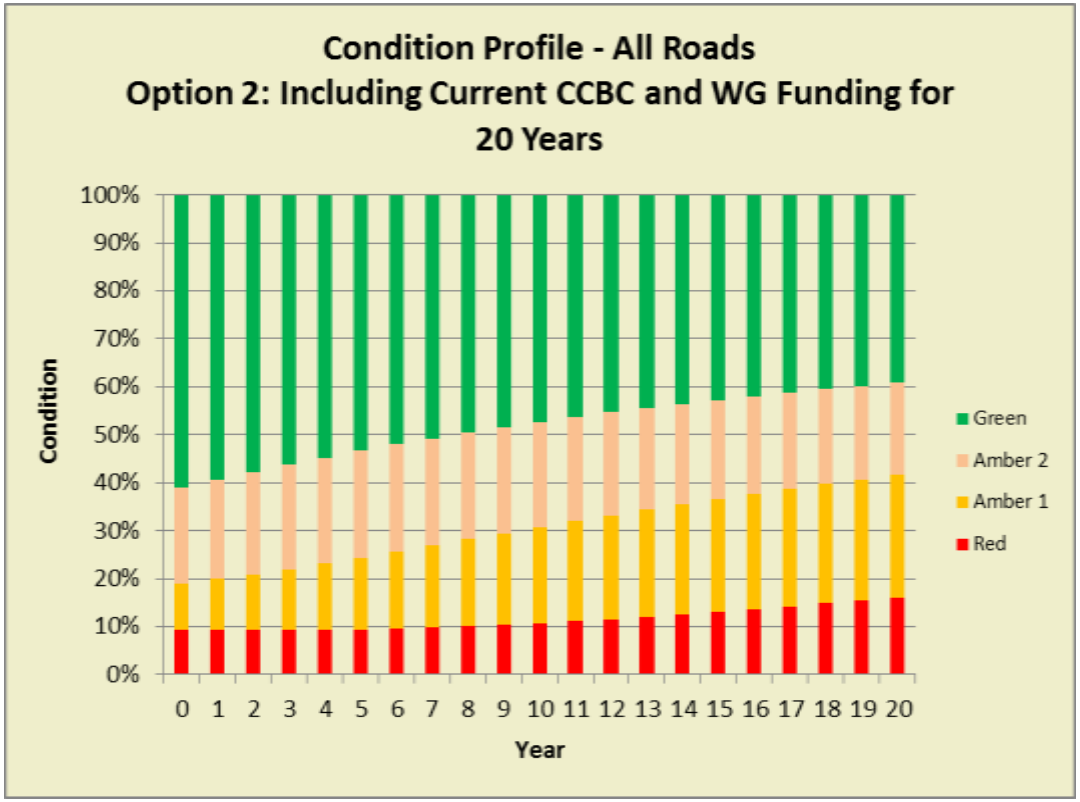
Surface Dressing

CCBC Revenue - £28,000

Carriageways at Red Condition predicted to reach 27% after 20 years

No funding allocated to Strengthening work

Maintain Current CCBC Budget And WG Grant Allocation For Future Years



Funding included in this option:

Resurfacing

WG Grant - £980,000 (for 20 years)

CCBC Capital - £739,000

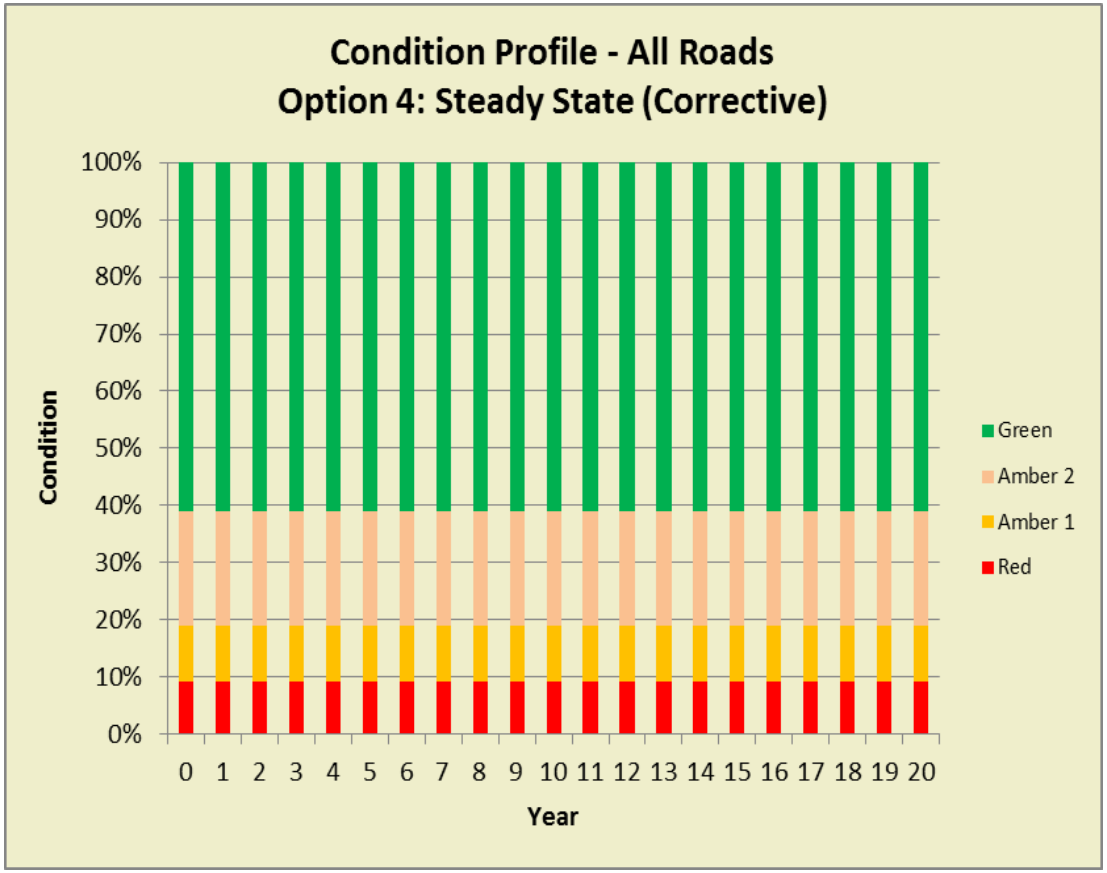
Surface Dressing

CCBC Revenue - £28,000

Carriageways at Red Condition predicted to reach 16% after 20 years

No funding allocated to Strengthening work

Maintain Current Carriageway Condition

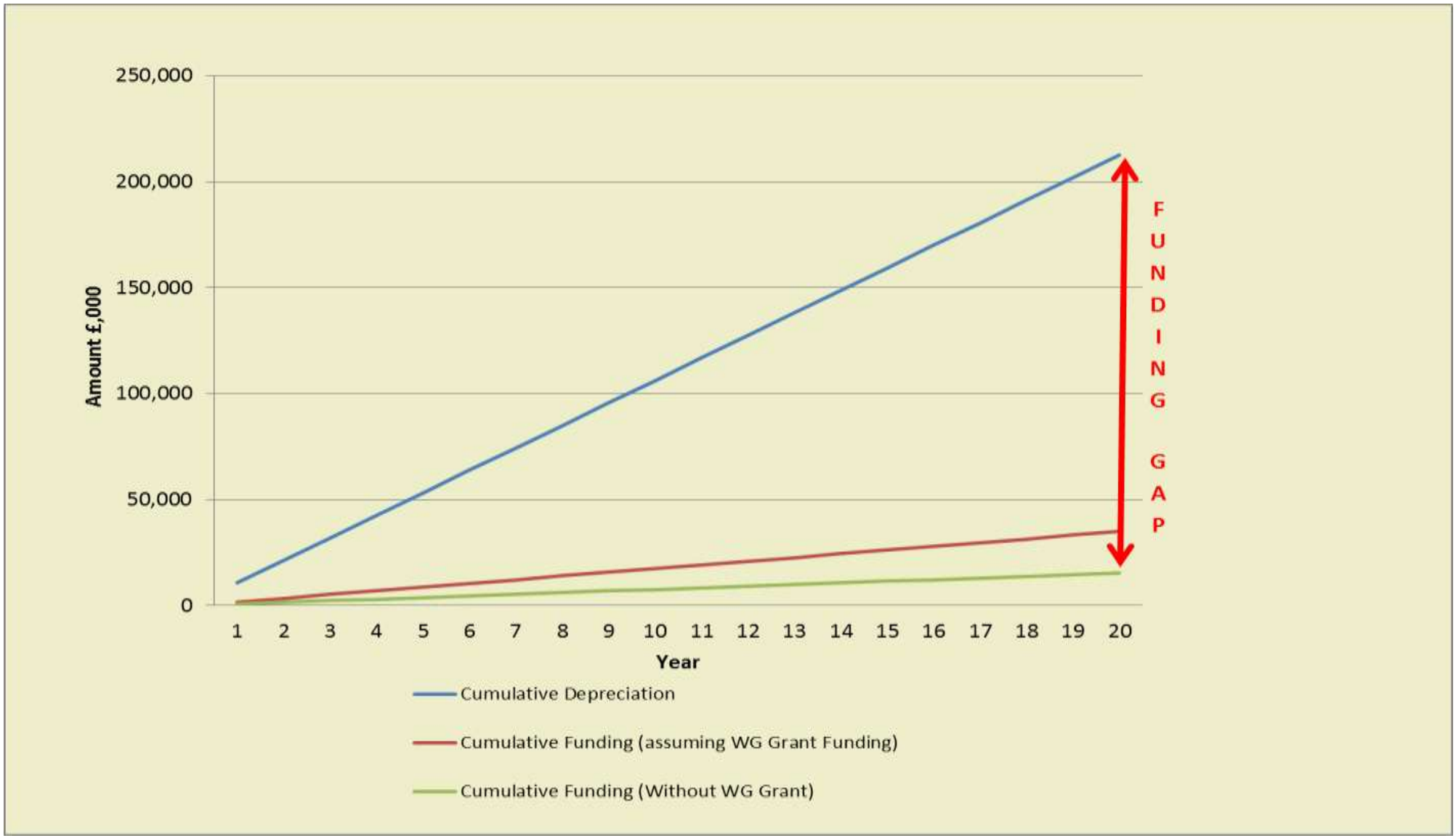


Funding included in this option:
Resurfacing
£837,000
Surface Dressing
£1,541,000

Carriageways at Red Condition predicted to remain at 9% after 20 years

No funding allocated to Strengthening work

Carriageway Funding Gap



It's Not Only Carriageways that are underfunded

Asset	Gross Replacement Cost £,000	Annual Depreciation £,000	Current Annual Investment for Improvements £,000	Annual Investment as a Percentage of Annual Depreciation
Carriageway	£1,157,140	£10,624	£1,747*	16%
Footway	£105,732	£1,639	£592	36%
Structures	£548,329	£1,162	£755	65%
Street Lighting	£26,937	£885	£50	5%
Street Furniture	£65,308	£2,936	0	-
Traffic Signals	£4,752	£172	0	-

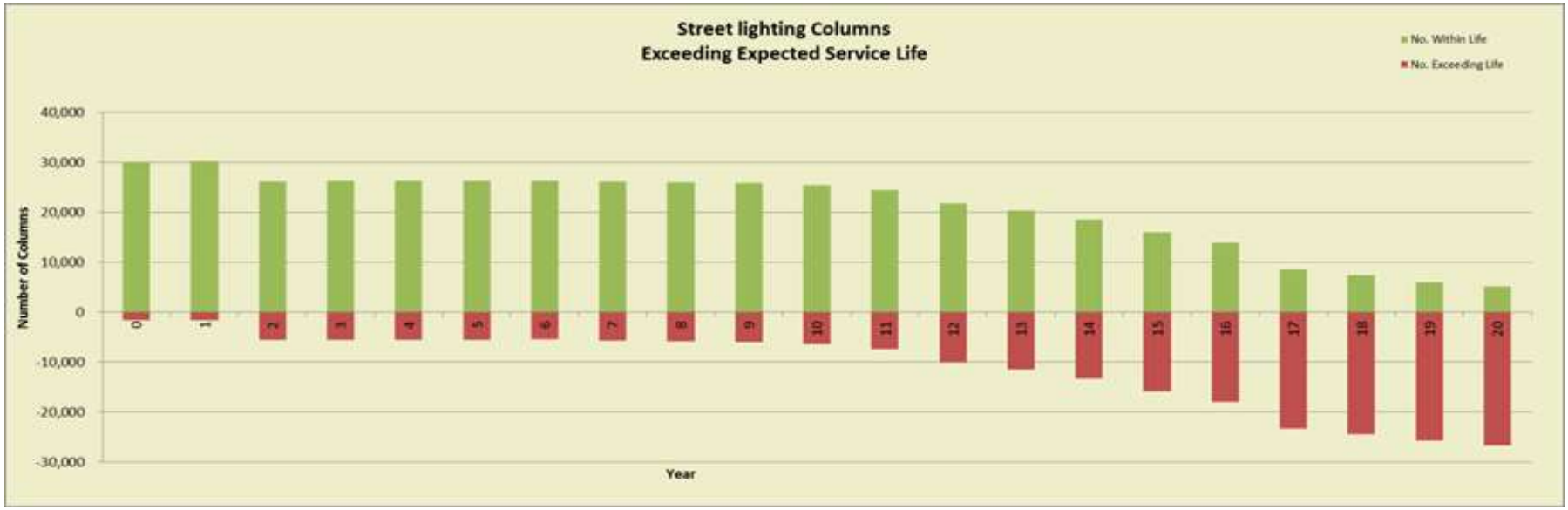
* Includes WG funding

State of the Nation

- *10% of all classified roads are in a poor condition (Improved from 13.4% in 2013/14) with a further 35% in a deteriorating condition (remaining constant)*
- *7.8% of the Unclassified Roads are in a poor condition, with a further 25% in a deteriorating condition (based on 12 authorities)*
- *Over 1800 safety defects and 78,000 Maintenance defects are recorded each year across Wales (based on 12 authorities' data)*
- *Road surfaces can expect to be renewed once every 64 years*
- *Investment in structural maintenance is less than 50% of the £68m required to maintain a steady state*
- *A current backlog of £232m has been calculated to be required to bring the carriageways back to an "acceptable" standard*

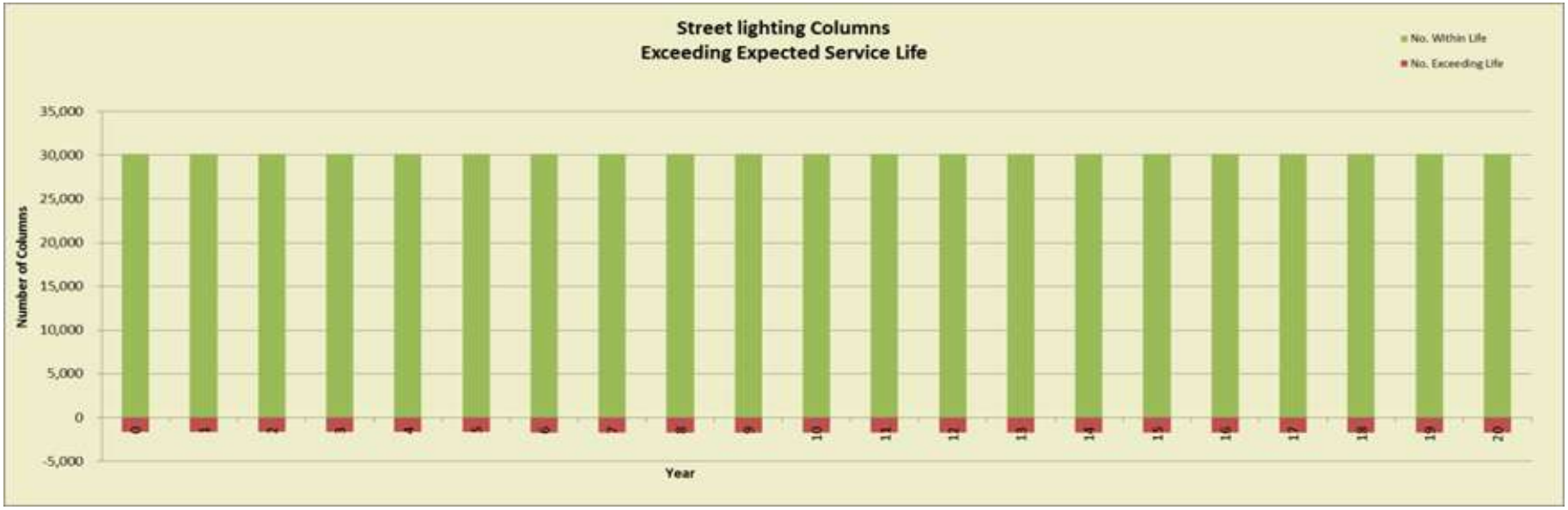
Street Lighting Spend

Street Lighting Forecast – Maintain current renewal budget



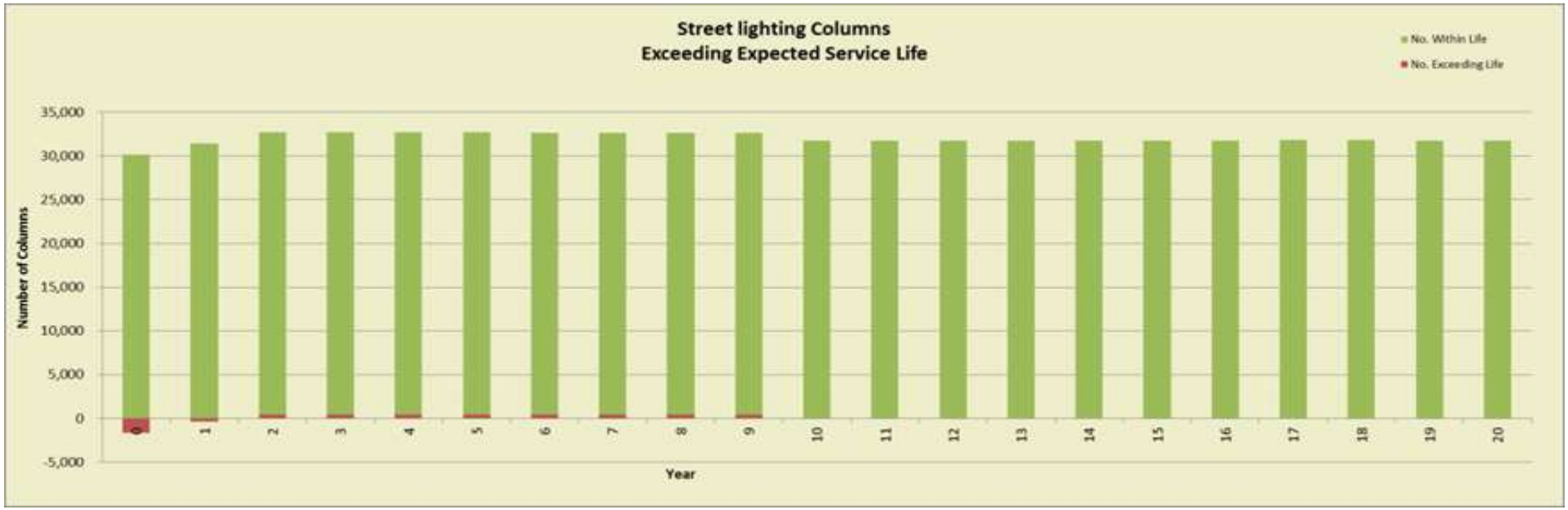
The graph above represents those street lighting columns which are presently within their expected design life (highlighted in green) and those which have exceeded their expected design life (highlighted in red). It is estimated that 5.2% of columns currently exceed their expected service life and that this amounts to a financial backlog situation in the region of £1,664,000 as shown by the graph below. If the current level of capital investment of £50,000 was continued and used exclusively for column replacement, then there would be a large decline with only 16% of all columns being within the expected service life at year 20, a backlog of £23,074,000.

Street Lighting Forecast – Steady State – Maintain current percentage of columns exceeding ESL



Maintaining the lighting columns at the current age profile (“steady state” condition) with 5.2% of the stock “life expired” will require an average annual investment of approx. £1,100,000 per annum for the next 20 years.

Street Lighting Forecast – Replace all columns exceeding ESL



Improving the lighting columns by replacing all the life expired units (“corrective” condition) with no stock “life expired” after 20 years will require an average annual investment of approx. £1,200,000 per annum for the next 20 years.

Columns Renewal Budget Projections

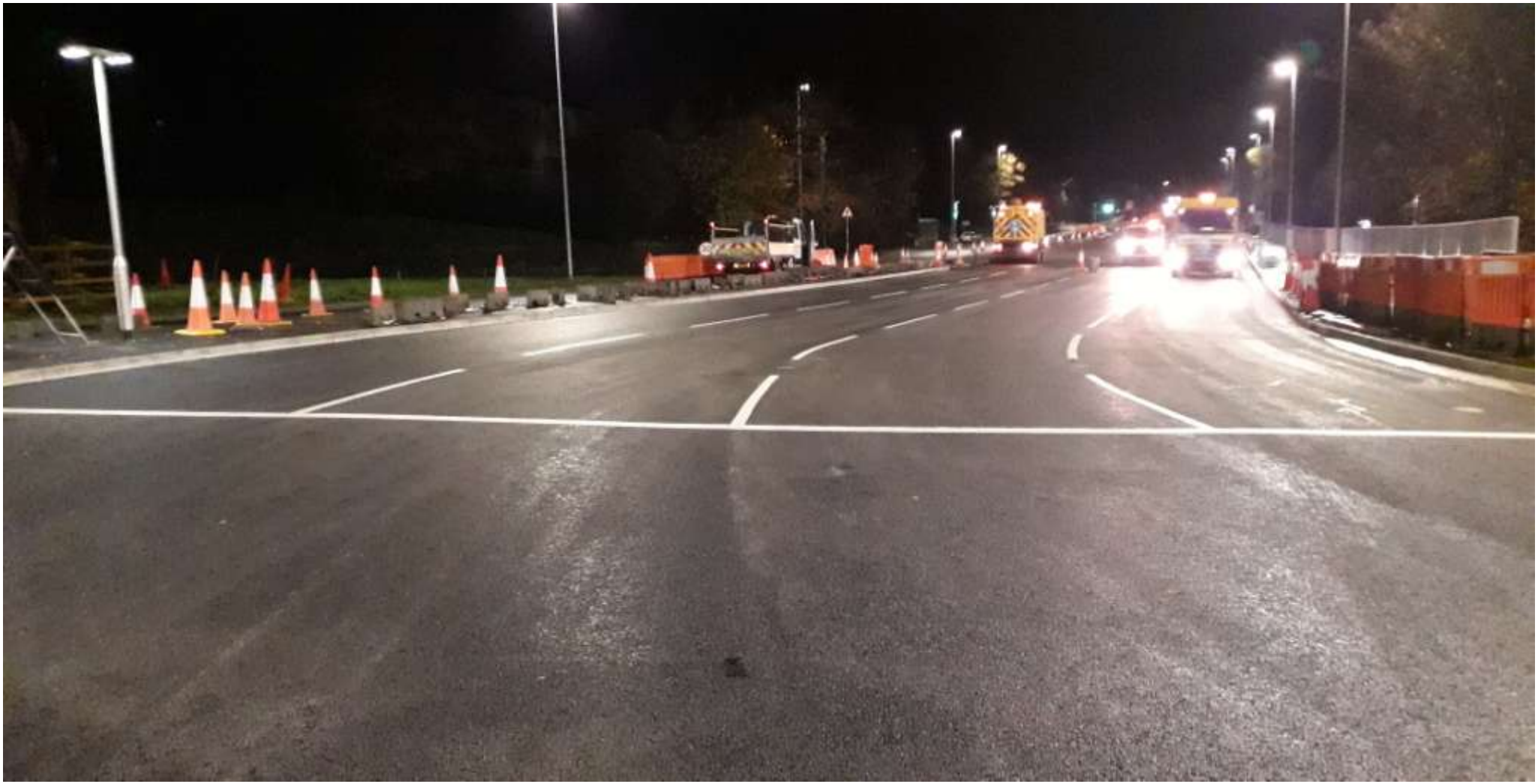
The following projections illustrate the percentage of columns that will exceed the expected service life after 20 years based on continuous constant investment levels.

Continuous 20 Year Investment	Percentage of Columns Exceeding Expected Service Life after 20 Years
£100,000	79.2%
£200,000	72.7%
£300,000	64.9%
£400,000	58.3%
£500,000	49.8%
£600,000	45.0%
£700,000	36.6%
£800,000	30.3%
£900,000	24.0%
£1,000,000	6.6%

State of the Nation

- *23% of columns have exceeded their expected service life*
- *46% of lanterns are relatively new low energy LED units*
- *Authority owned supply cable is aged and of unknown condition*
- *Approximately 45,000 day to day faults are recorded across Wales pa (this number is falling due to the introduction of new LED lanterns*
- *It is estimated that approximately £8m pa is required for column replacement to prevent the age profile becoming worse*
- *Replacing the worst 1% of the cable network would cost £3m pa and take 100 years.*

Future of Highway Network



Future of Highway Network

Papering over the Cracks

Question Time

ANY QUESTIONS?