



One Trafford Partnership

**Highway Infrastructure Asset Management Plan
(HIAMP) Highways Session 12/01/2023**

Highway Infrastructure Asset Management Plan

- Introduction
- This is HIAMP
- Asset Management Principles –Condition & Lifecycle Planning
- Review of past Highways Asset Management budgets and Performance
- Outcomes and Limitations
- What are limitations?
- Recommendation .

Highway Infrastructure Asset Management Plan (HIAMP)

- Trafford Highway Infrastructure Asset Management Plan
 - 3 Part – Policy, Strategy & Plan
- It documents Trafford Asset Management Approach
- Covers all Highway Assets
- Future challenges;
 - *Detoriation of network*
 - *Austerity*
 - *Carbon reduction*



Trafford Council
Highway Infrastructure Asset
Management Plan
2022- 2027

September 2021

Highway Infrastructure Asset Management Plan

Highway Maintenance Funding

- Reactive maintenance funding - Revenue
- Planned highway maintenance funding
 - Department for Transport Grants
 - HM Block – Needs Element (80%)
 - Incentive Fund (20%)- Level 3 –(top level)
 - Ad-hoc Grants – DfT Pothole Fund last given 2018/19, CRSTS 2022
 - Trafford Capital
 - Annual Incentive Fund Assessment – **Essential to receive Incentive Fund Allocation for 100% funding**

Highway Infrastructure Asset Management Plan

What have we done to date ?

- We have developed long-term, asset data and intelligence which has enabled planned investments in our roads and bridges to enable us to manage the steady state of deterioration of the strategic highway network.
- In 2021 Trafford recognised the risk of Unclassified (u class) network rapidly failing over a previous 4 year period and invested an initial £6m / 2 year programme of treatment and surface dressing for the 2022-24 period , to tackle this failure rate
- We have been successful in bidding for additional grants and funding , both as TBC and the wider GM family . Examples include the 2018/19 £1m Pothole and flood grant , the £4.5m CRSTS funding and Trafford's first Environmental Agency grant for flood risk.
- A major £10m initial investment completed in June 2017, saw approx. 23,000 new LED lanterns being fitted. On going investment in our street lighting to convert many outdated and inefficient lanterns to LED to ensure a much lower carbon footprint.
- An annual programme of continued column and sign replacement reducing risk and further carbon reduction cumulating in excess of £1m per annum of investment in 'red' condition assets

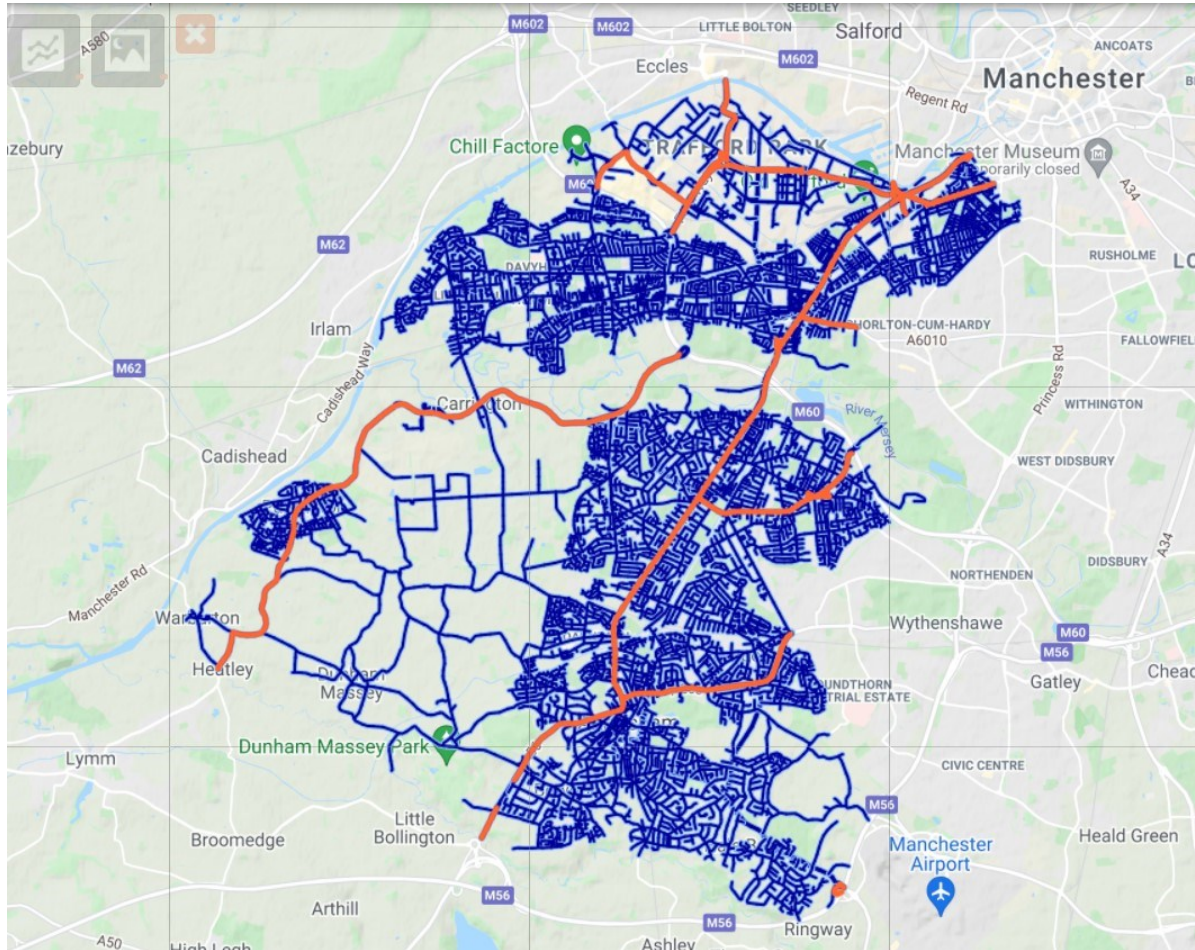
Highway Infrastructure Asset Management Plan

Summary of Highway Assets (some of the data sets)

Asset	Quantity	Estimated Value (The cost of a like for like replacement)
Roads	A Roads – 59.9km B Roads – 51.4km C Roads – 43.1km Unclassified Roads – 639.5km TOTAL – 793.9km	£997,029,000
Footways & Cycle Tracks	1196.0km (No separate data currently available for segregated cycle tracks)	£234,364,000
Structures	Bridges – 63 Footbridges - 40 Large Culverts – 49 Other structures – 25 Total	£345,944,000
Street Lighting	Lighting Columns – 26,093 Illuminated bollards – 754 Illuminated signs – 3157 Total	£47,969,000
Fences and Barriers	Vehicle Restraint Barriers – 50,000m Safety fence – 16,402m Pedestrian barriers – 13,947m	£20,470,000.00 £2,050,250.00 £3,486,750.00
Drainage	Road gullies – 57,503 units *No separate data currently available for drainage pipe network) (No separate data currently available for linear drainage)	£ 69, 003,600 *
Soft Landscape	Verges – 21.20km Trees – 20,191	Not currently included in WGA Valuation estimate
Signs and Road Markings	Non-illuminated signs – 11,910	

Highway Infrastructure Asset Management Plan

How we gather data on Road Condition Assessment & Banding



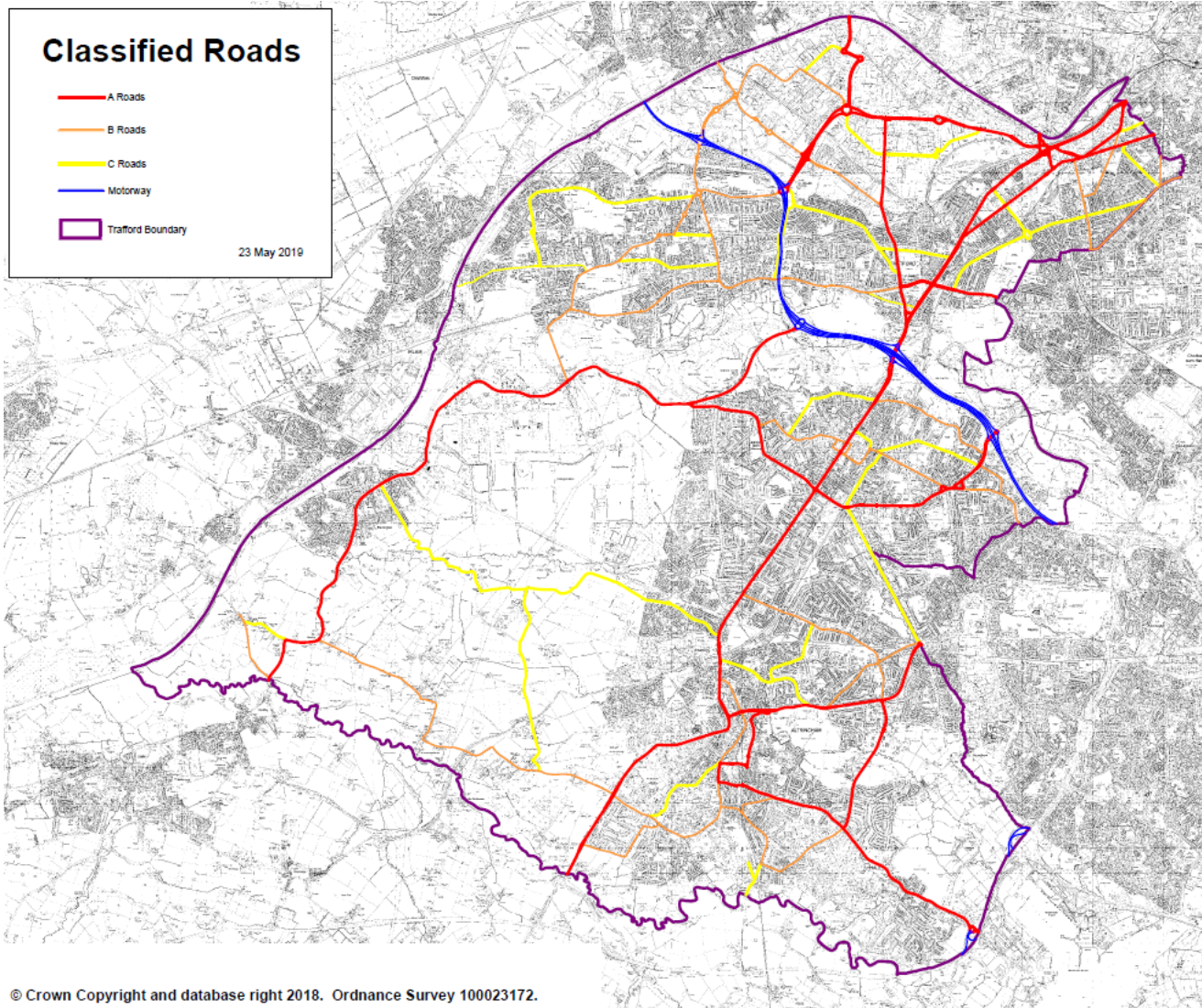
- Machine- Based Surveys (SCANNER)
- Driven CVI/ DVI Surveys
- Footway Network Surveys
- Defects Identified and Measured
- Road Condition Score & Banding

Highway Infrastructure Asset Management Plan Treatment Selection



Highway Infrastructure Asset Management Plan

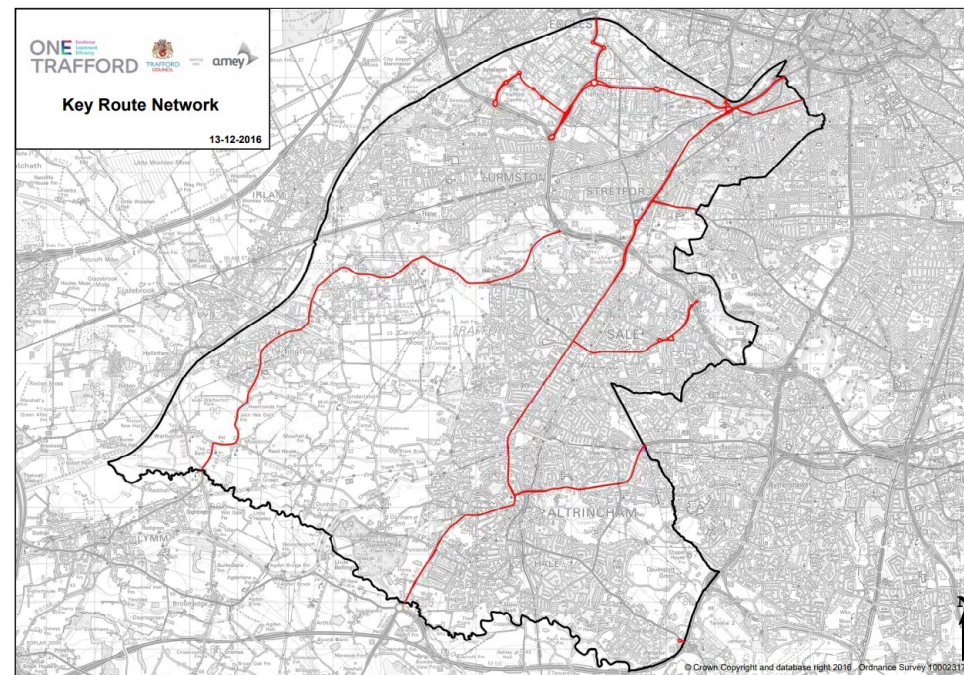
The Trafford Road Network (data)



Road Classification	Length - km	% of total
A Roads	60	8
B Roads	54	7
C Roads	44	6
Unclassified Roads	596	79
Total Maintained Network	754	100
Key Route Network	64	9

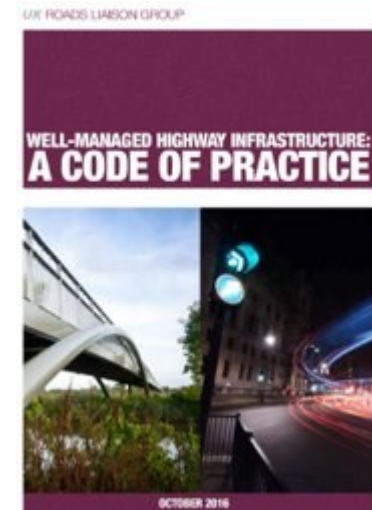
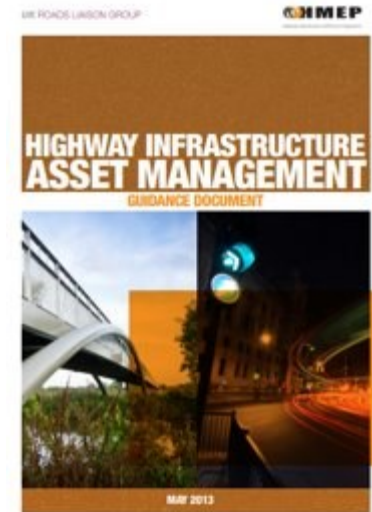
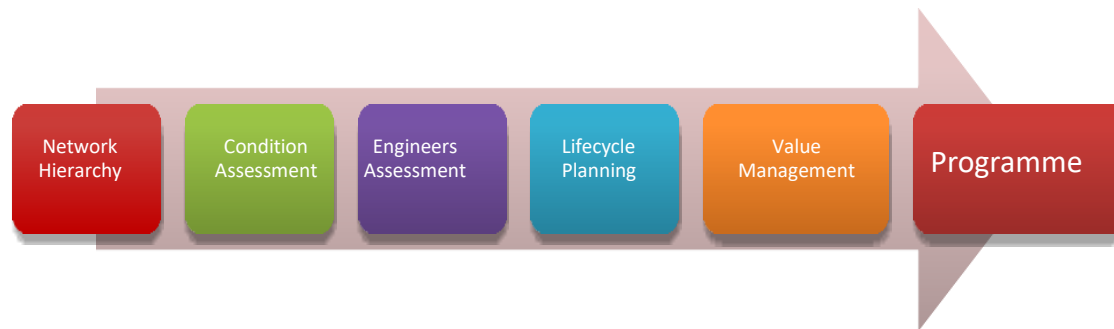
Gross Replacement Cost
All Highway Assets
£1.64BN

Carriageways
£1.02 BN

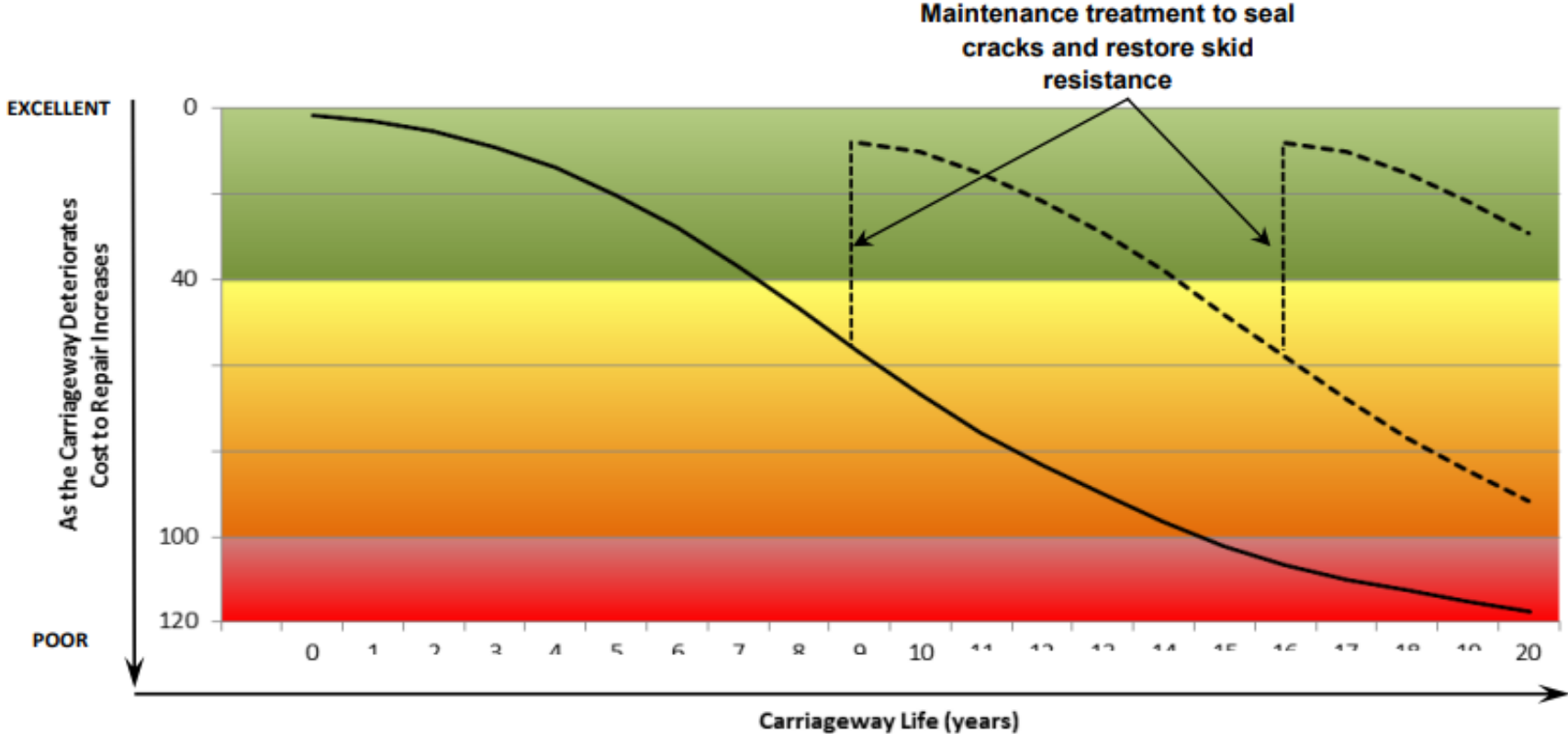


The Approach to Asset Management Maintenance & Inspections

- HIAMP and Maintenance Operations National Guidance
- DfT Annual Incentive Fund Assessment – must evidence;
 - Asset Management Approach
 - Operational efficiency & collaboration
 - Customer engagement



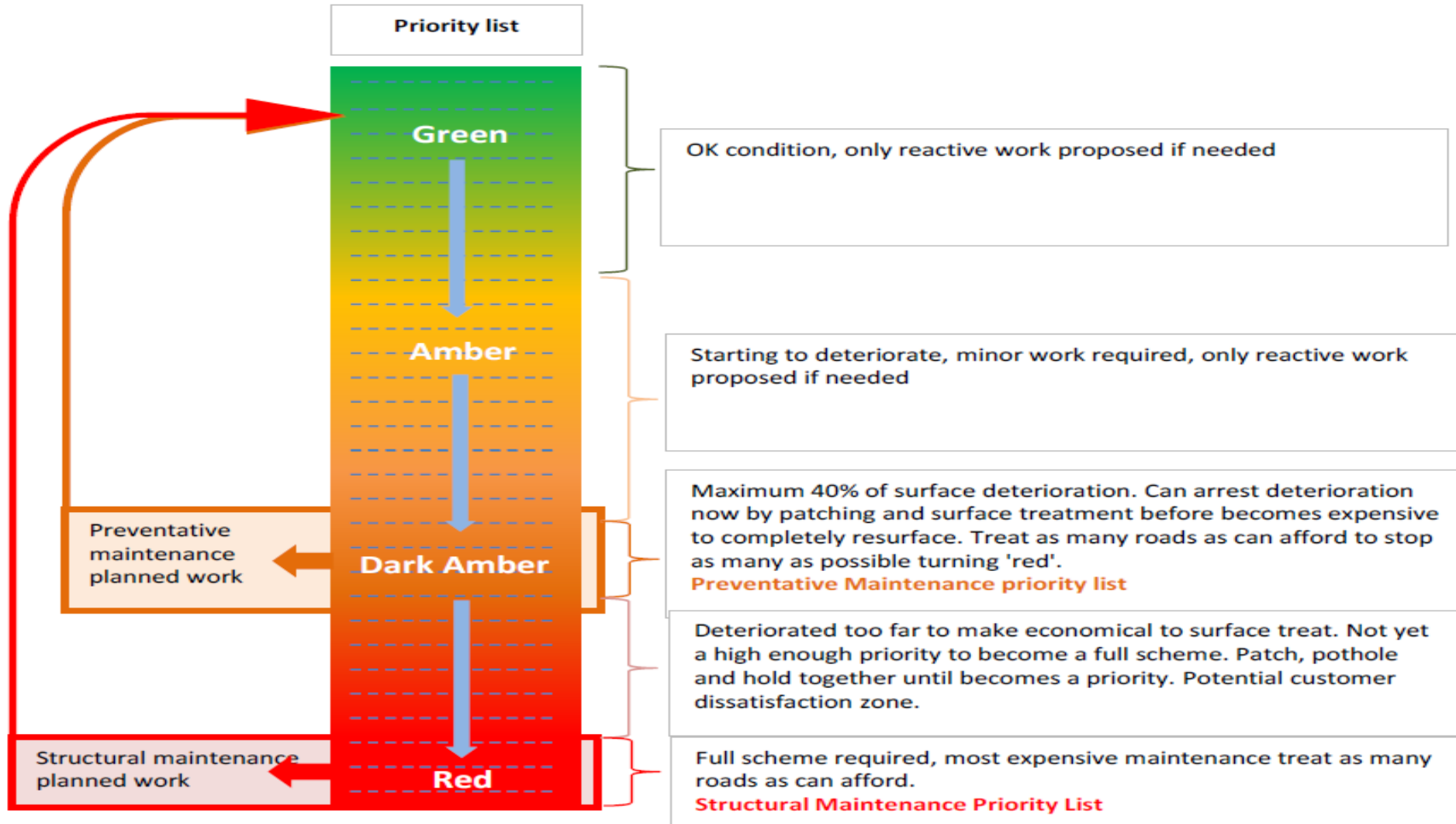
The Approach to Asset Management Lifecycle Planning



Key

- The deterioration in the carriageway
- - - The impact of early intervention treatments (such as surface dressing). This treatment can return the carriageway to an almost new condition.
- Green = Good condition, Amber = Fair to poor condition, Red = Very poor condition

The Approach to Asset Management Treatment Selection



The Approach to Asset Management

Asset Management Strategy

- **Current Strategy**

- Optimal mix of preventative treatments (**Amber** to **Green**) and structural (**Red** to **Green**)
- Investment Level = Deteriorating local roads condition (Managed deterioration)

- **Predicted Outcomes from under investment**

- Increasing maintenance backlog
- Increasing public liability claims
- Decrease in public satisfaction with local roads
- Increased pressure on revenue (increased reactive repairs)
- Commercial impact and investment opportunities reduce (Unappealing area)

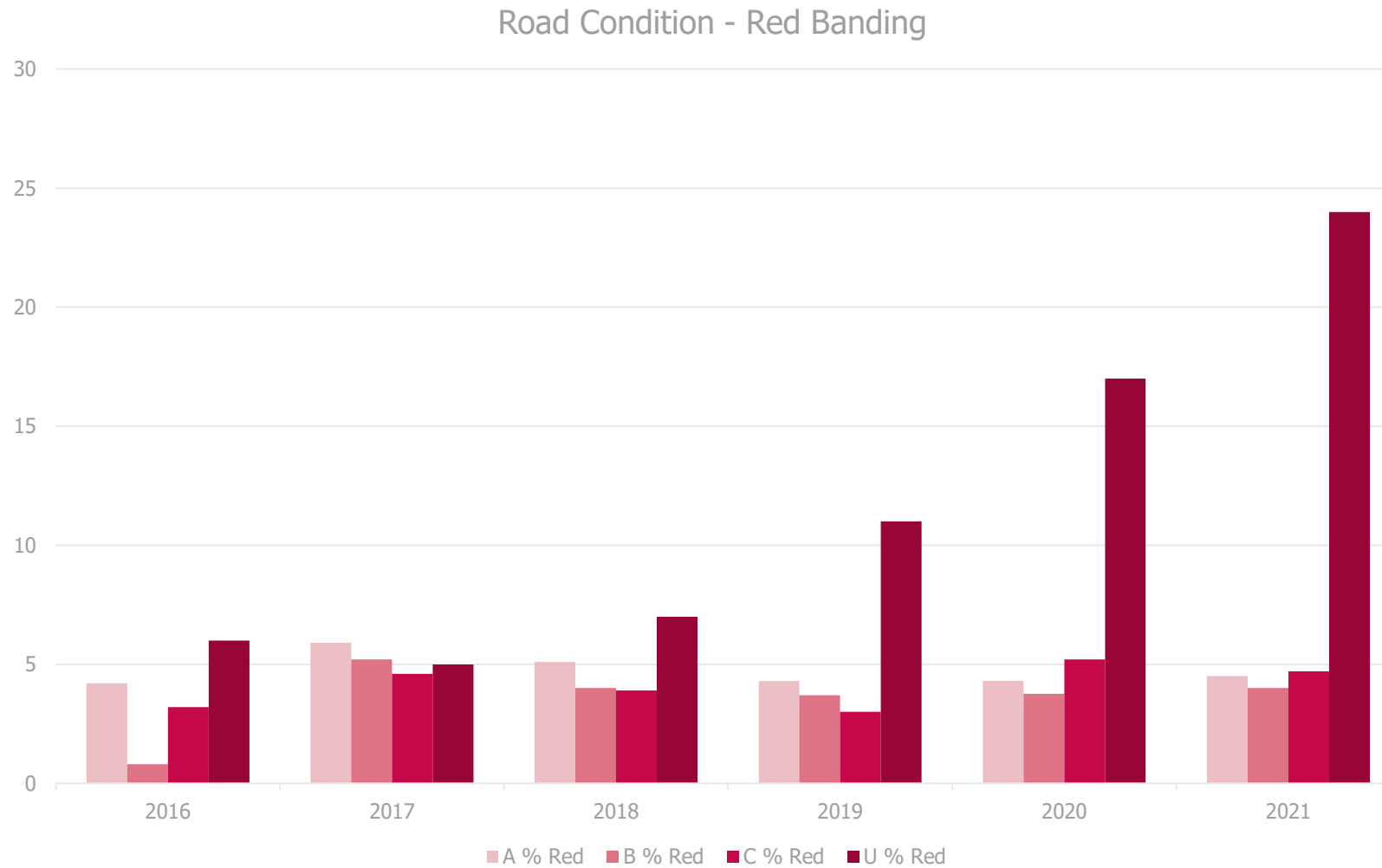
The Approach to Asset Management

Asset Management Strategy- Carriageways

Year	A Roads		B Roads		C Roads		Unclassified Roads	
	Red	Amber	Red	Amber	Red	Amber	Red	Amber
2021	4.50%	26.50%	4.00%	27.90%	4.70%	27.70%	24.05%	N/A
2020	4.31%	26.22%	3.76%	23.70%	5.20%	30.80%	17.00%	N/A
2019	4.30%	25.10%	3.70%	24.70%	3.00%	21.40%	11.00%	N/A
2018	5.10%	25.70%	4.00%	25.90%	3.90%	22.90%	7.00%	N/A
2017	5.90%	28.10%	5.20%	29.20%	4.60%	27.30%	5.00%	N/A
2016	4.20%	25.80%	0.80%	4.60%	3.20%	24.10%	6.00%	N/A

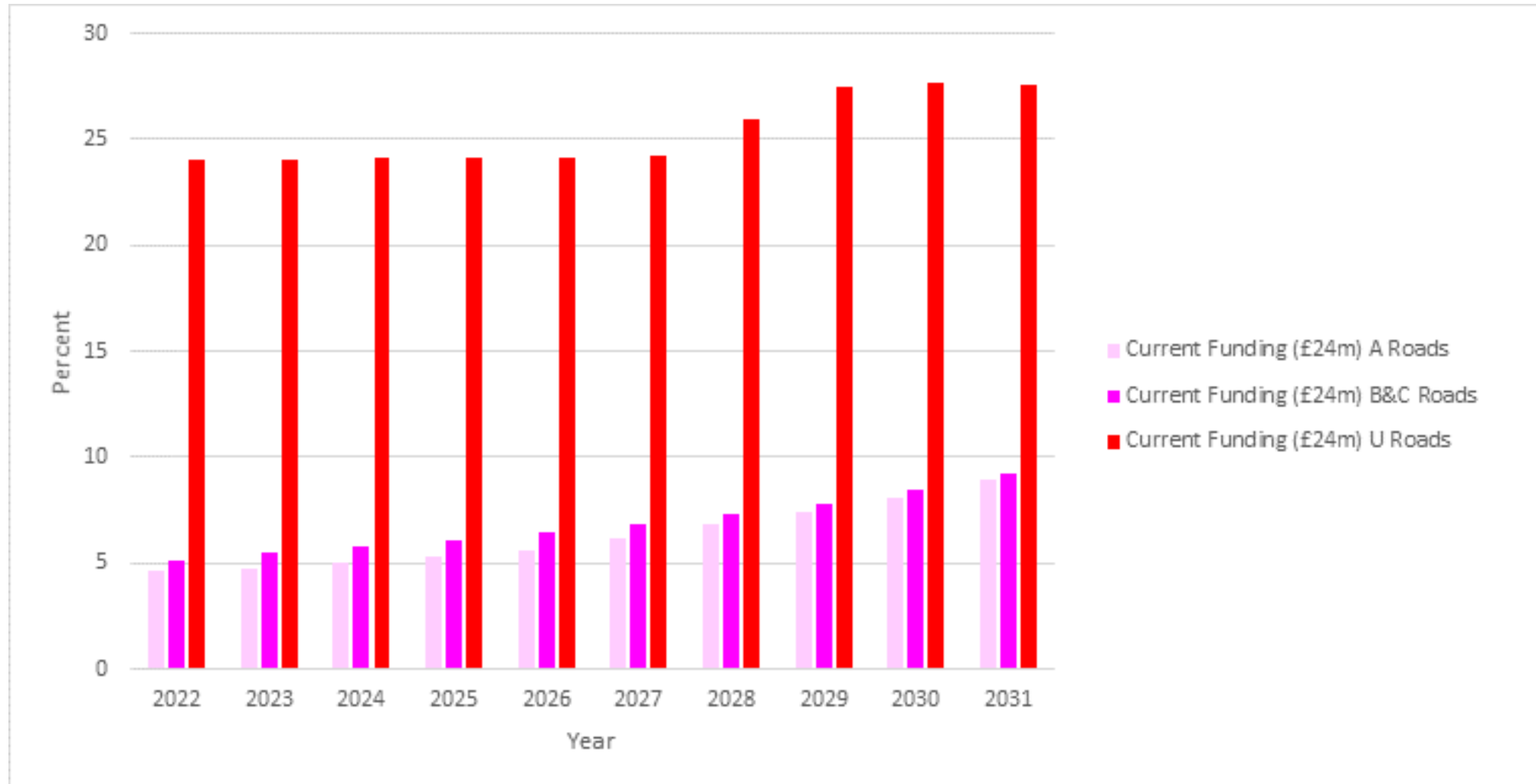
The Approach to Asset Management

Road Condition – Red Banding



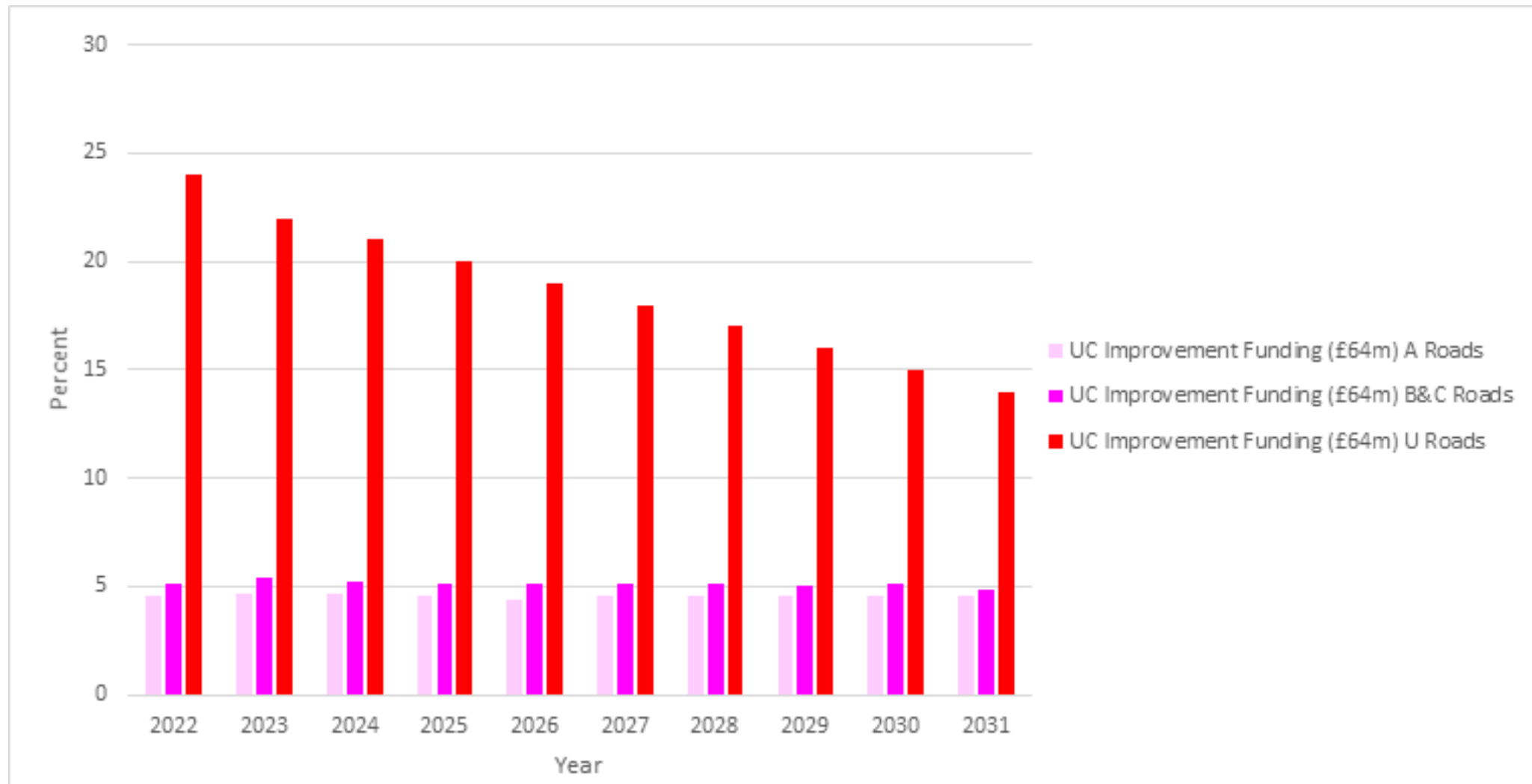
The Approach to Asset Management

Asset Management Strategy – Investment Scenarios (£24m/ 10 years))



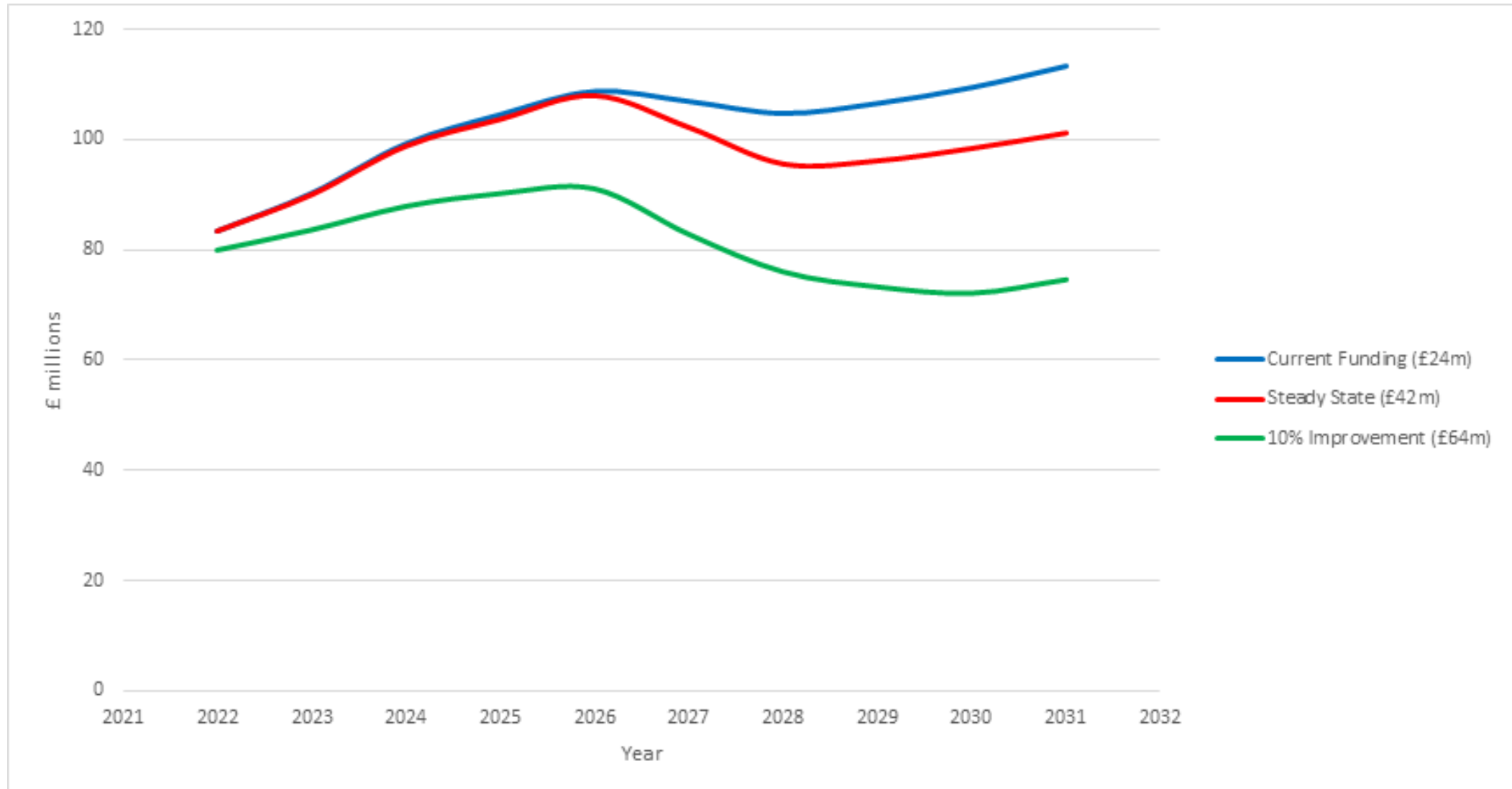
The Approach to Asset Management

Asset Management Strategy – Investment Scenarios

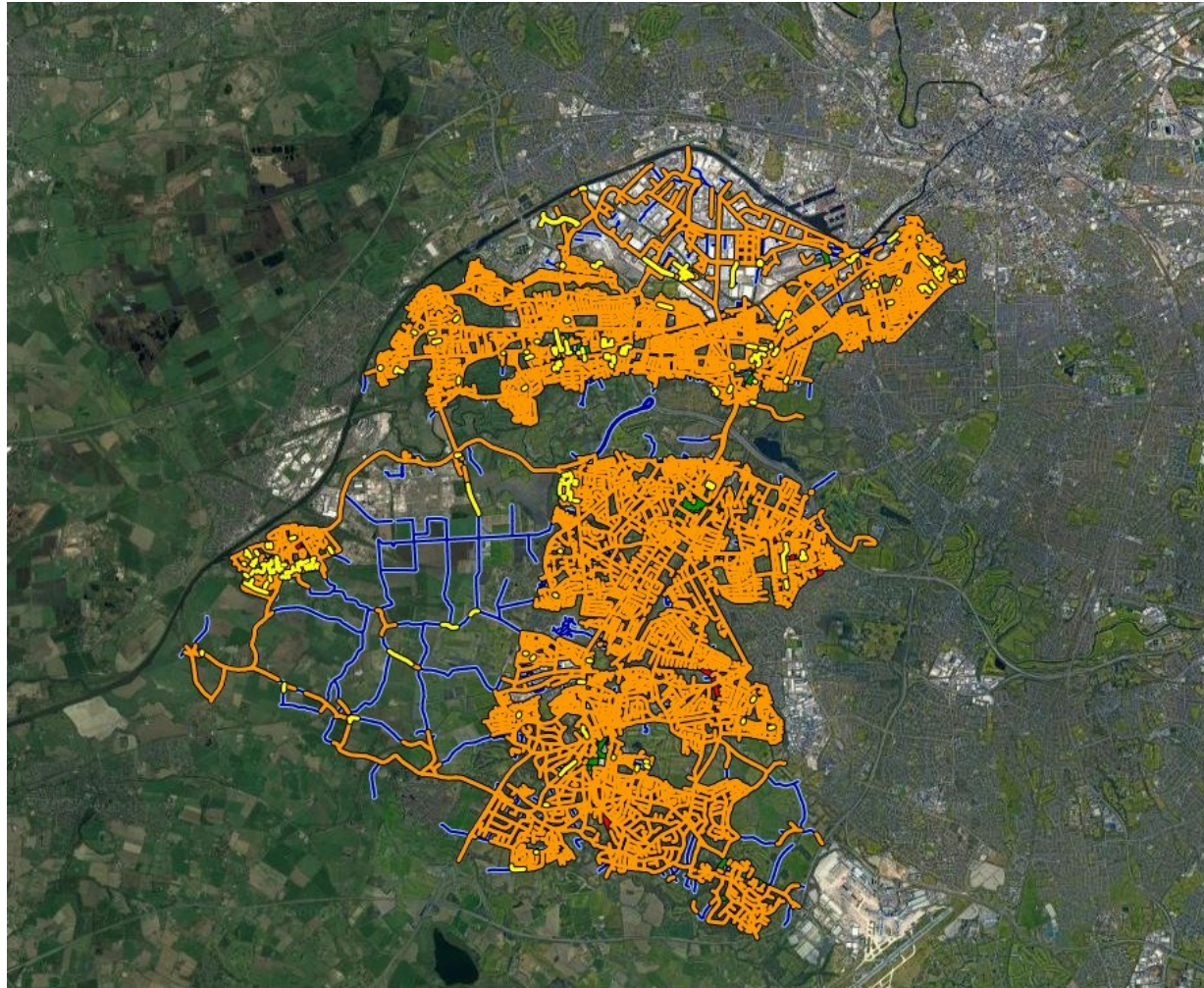


The Approach to Asset Management

Asset Deterioration comparison



Highway Infrastructure Asset Management Plan The Trafford Network - **Footway**



Highway Infrastructure Asset Management Plan

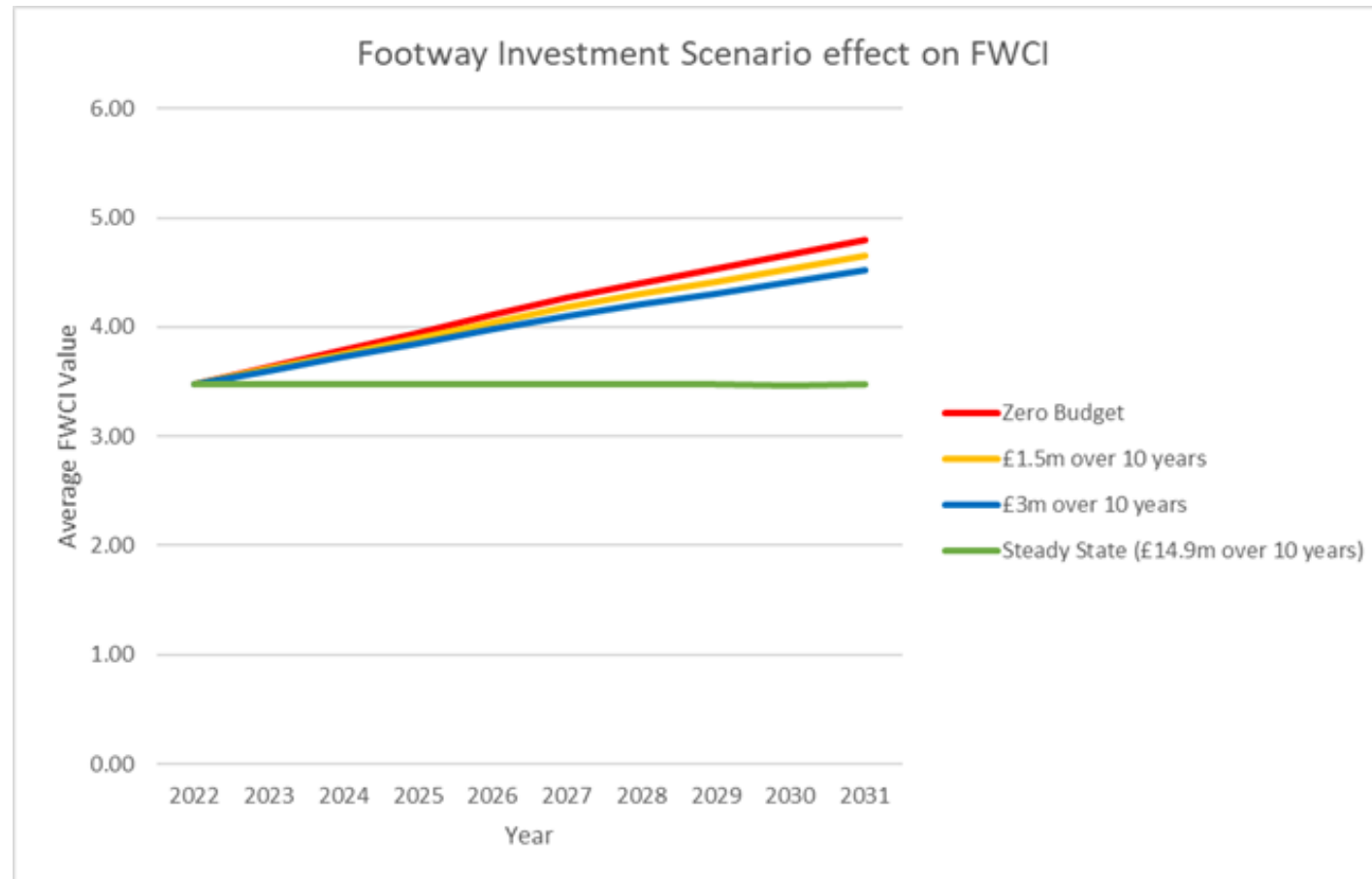
The Trafford Footway Network

Hierarchy	Category	Description	Length
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.	19.42KM
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.	12.52KM
3	Link Footways	Linking local access footways through urban areas and busy rural footways.	1,169.06KM
4	Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.	18.41KM

Highway Infrastructure Asset Management Plan The Approach to Asset Management – Footways conditions

	Footway Hierarchy				
Condition Band	1	2	3	4	Total Network
Red - SU	9%	16%	18%	32%	18%
Amber - FI	31%	58%	52%	32%	52%
Yellow - AI	13%	5%	9%	12%	9%
Green - AN	48%	21%	21%	24%	22%

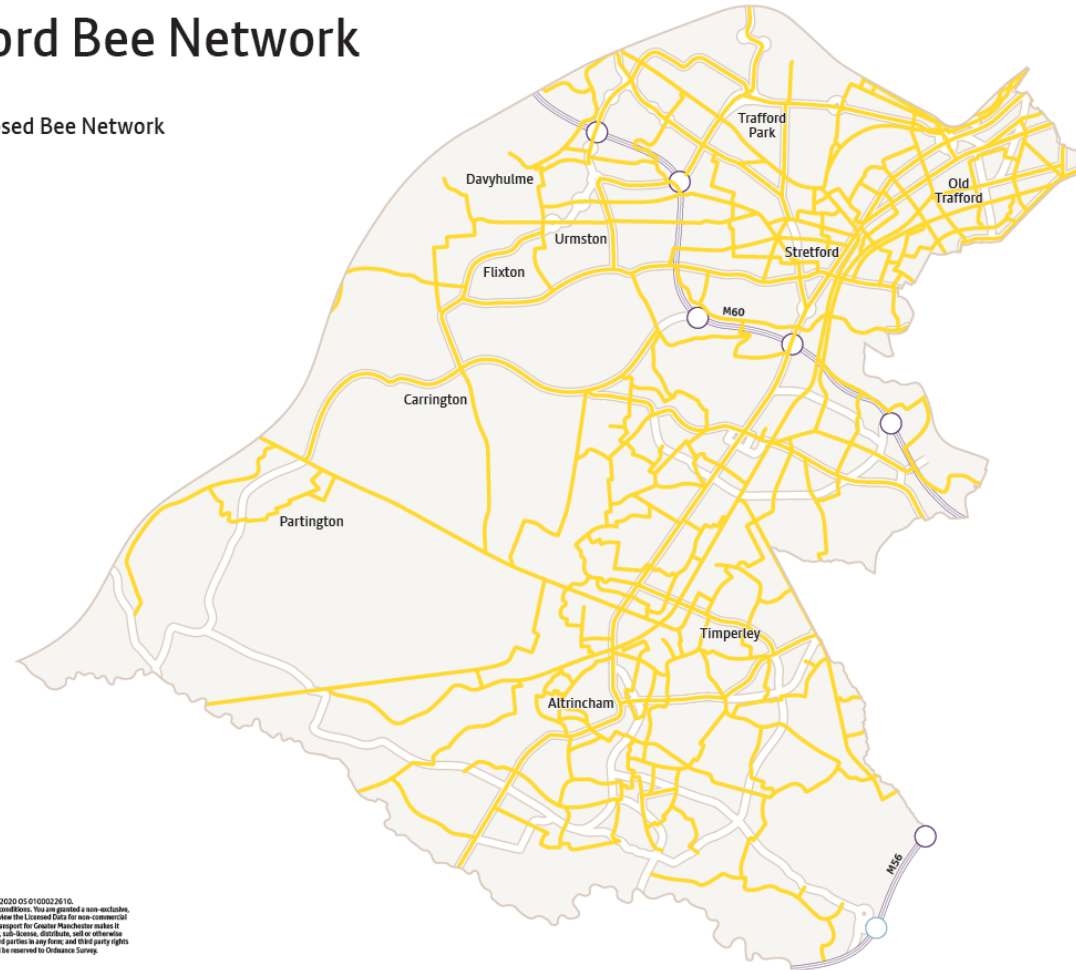
Highway Infrastructure Asset Management Plan The Approach to Asset Management – Footways Budget Model



Highway Infrastructure Asset Management Plan The Approach to Asset Management – Cycleways

Trafford Bee Network

— Proposed Bee Network



© Crown copyright and database rights 2020 OS 0100023610. Use of this data is subject to terms and conditions. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which Transport for Greater Manchester makes it available; you are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form; and third party rights to enforce the terms of this licence shall be reserved to Ordnance Survey.

The Approach to Asset Management

Asset Management Strategy

- Options

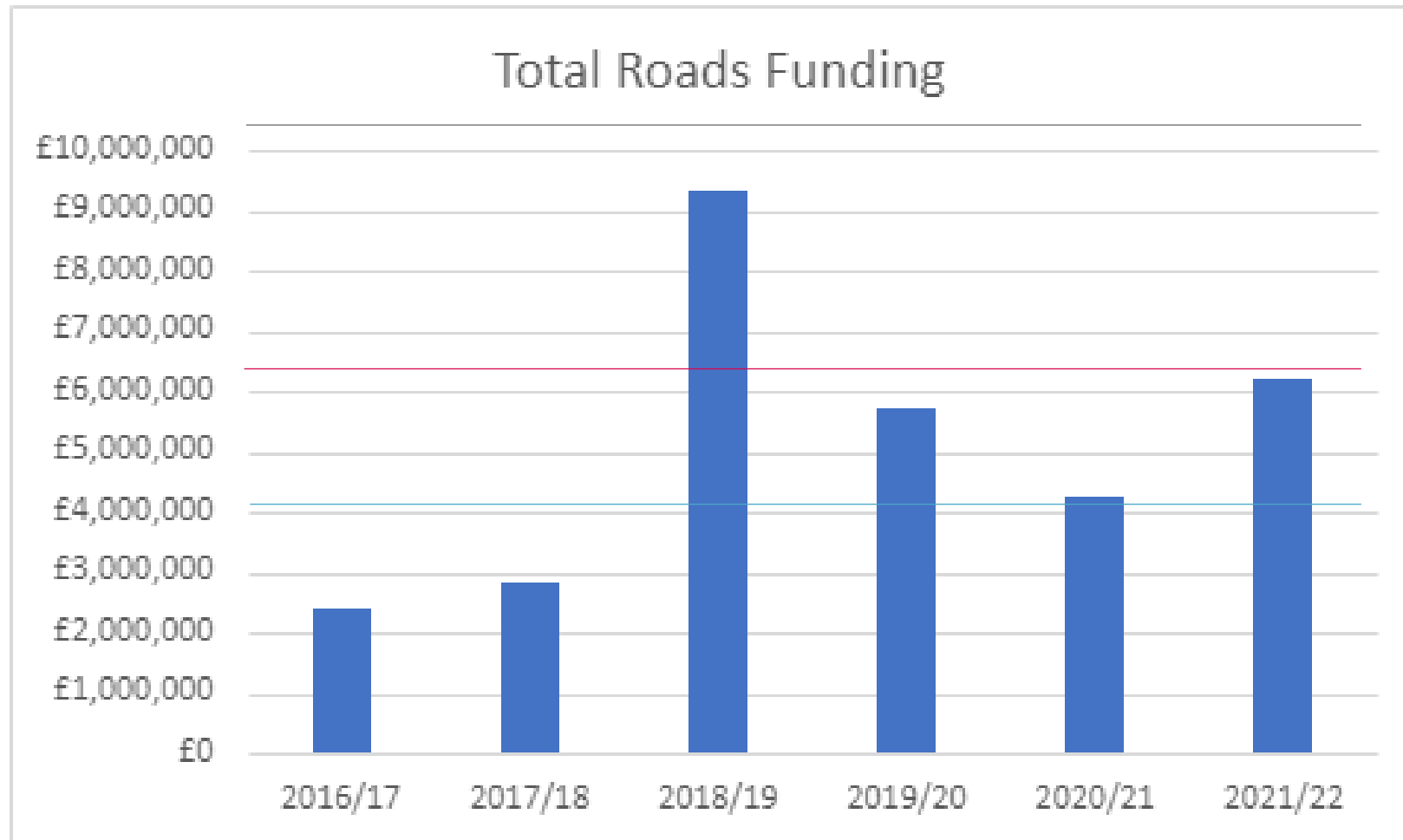
1. Continue with current strategy and investment profile
2. Additional capital investment to achieve steady state condition
3. Additional capital investment to improve road and footway condition

- Recommendation

- Minimum investment should be— Option 3 and invest in reducing revenue pressures.

The Approach to Asset Management

Historical Investment Profile with investment markers as discussed carriageway and footway only



Highway Infrastructure Asset Management Plan

Asset Management – Street lighting

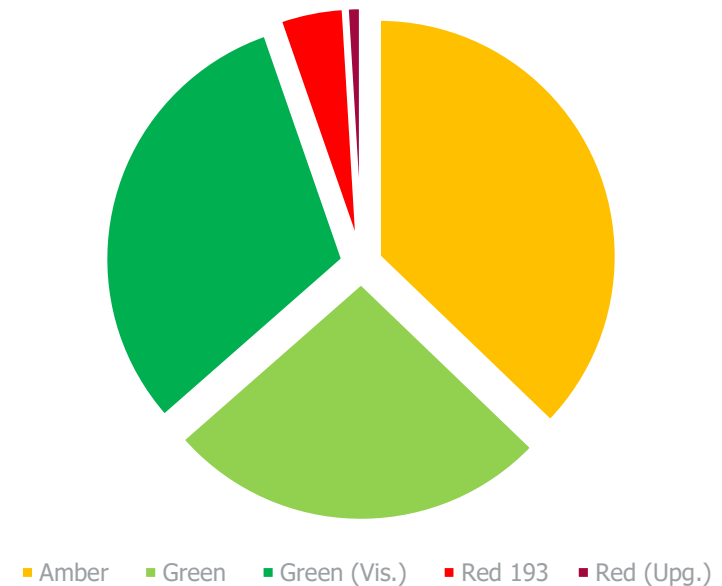
Total number of streetlights	27,130
Total number of streetlights controlled by CMS	23117
Total number of illuminated bollards	680
Total number of illuminated signs	3123
Total number of feeder pillars No inherent asset data provided in this regard.	80+ now identified
% of apparatus more than 25 years old Between 10-12% of the asset is > 25 years old.	between 10-12% presently
% of streetlights performing to lighting standards	Works since 2015/16 all compliant with present standard/ standard at time
standard/standard at time.	
% of inefficient light sources	~19.8%
Total number of assets de-illuminated	455
Total number of streetlights controlled by CMS	23117

Highway Infrastructure Asset Management Plan The Approach to Asset Management – Street lighting

Status	Count
Amber	1644
Green	1165
Green (Vis.)	1377
Red 193	193
Red (Upg.)	42
Grand Total	4421

Condition Band		Condition
1	Green	As New
2	Green Vis	Recommend further inspection between 36 months and 72 months
3	Amber	Recommend further inspection within 36 months
4	Red upg	Further inspection at the earliest opportunity. Removal likely in 12 – 24 weeks
5	Red	Non-functional / failed

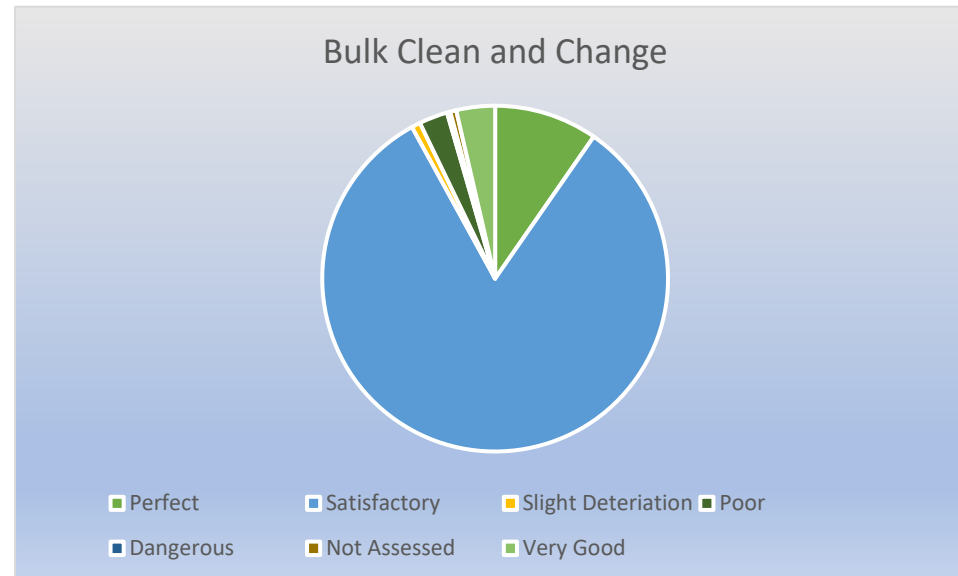
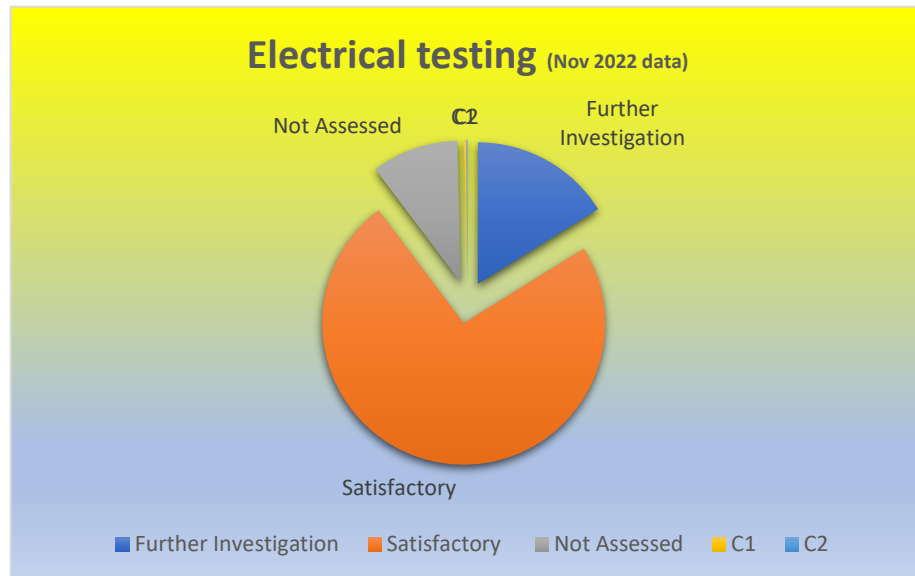
2022 Testing Nov 2022



Highway Infrastructure Asset Management Plan The Approach to Asset Management – Street lighting

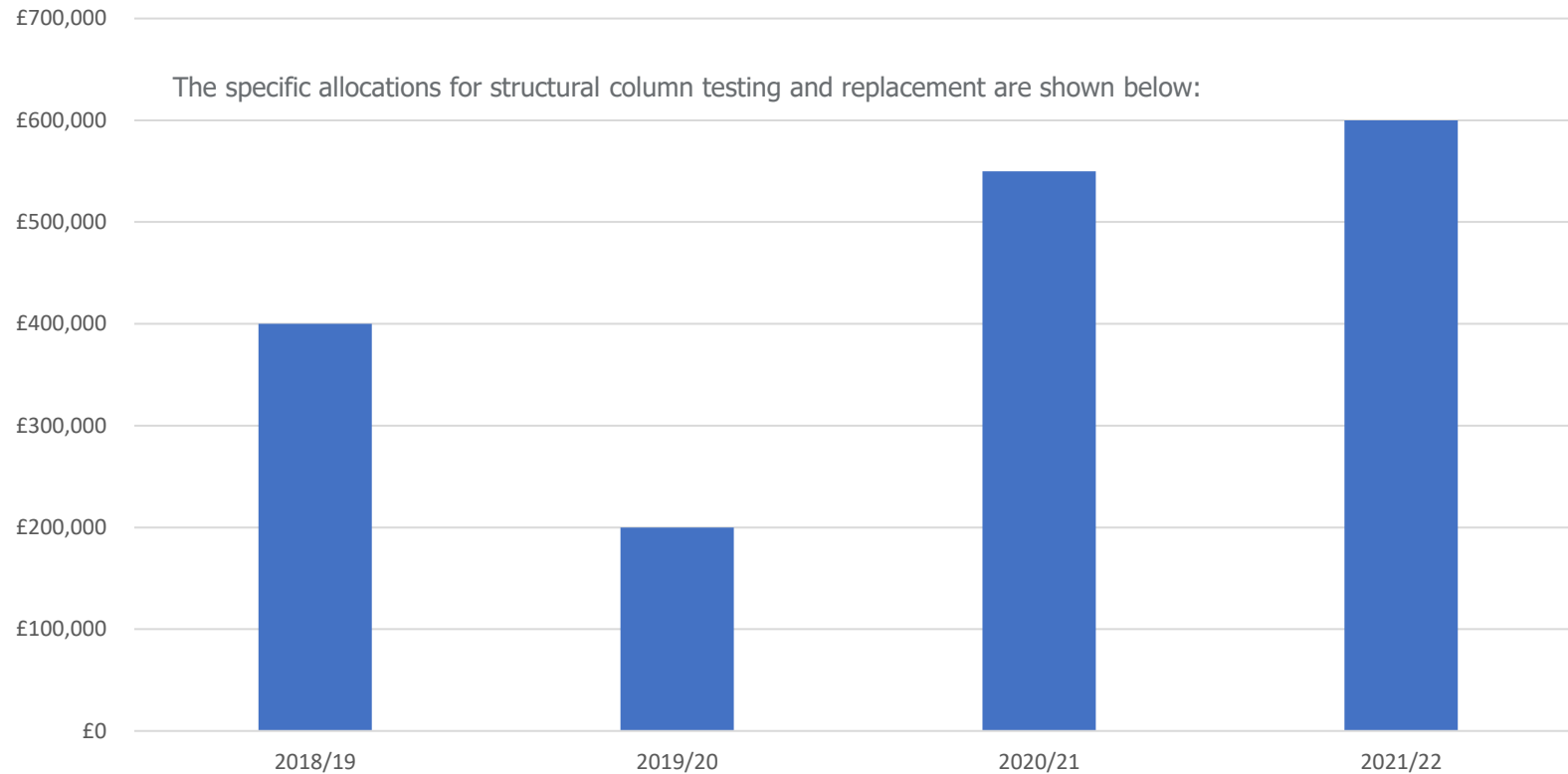
Electrical Testing Results	No
Further Investigation	542
Satisfactory	2469
Not Assessed	333
C1	7
C2	5
Total	3356

Bulk Clean/ change	No
Perfect	564
Satisfactory	4806
Slight Deteriation	48
Poor	156
Dangerous	18
Not Assessed	33
Very Good	211
Total	5836



Highway Infrastructure Asset Management Plan – Street lighting investment

Street Lighting Structural Capital Allocation



Highway Infrastructure Asset Management Plan The Approach to Asset Management – Street lighting recommendations

One of the key drivers with electrical assets is to reduce energy costs . This requires either removing old inefficient stock or fine tuning modern units that already exist .

- Replace SOX 1,045 units at a total cost of £2m
- Replace SON 694 units at a total cost of £400K
- Replace Cosmo 1,098 units at a total cost of £630K
- Change lighting settings on signs where possible (18.5w reduced to 2w/de-illuminated) 2,273 units at a total cost of £1.11m
- Underbridge lighting (150w 24 hour to LED controlled) 41 units at a total cost of £61K
- LED (non - CMS) to LED CMS 1,562 units at a total cost of £900K

Recommendation and options

- Replace old asset over a 3 year period . Invest £3.0m (total £1000k p.a.)
- Reduce energy cost by reducing light settings . Invest £1.0171m over 2 year period (Total £585k p.a.)
- Add CMS to non CMS units £900k . Possible year three option

This will reduce energy costs at a slower rate than wholesale change but reflected against heavy energy cost the initial cost recovery will secure stock longevity and reduce energy

Highway Infrastructure Asset Management Plan The Approach to Asset Management – Street lighting recommendations

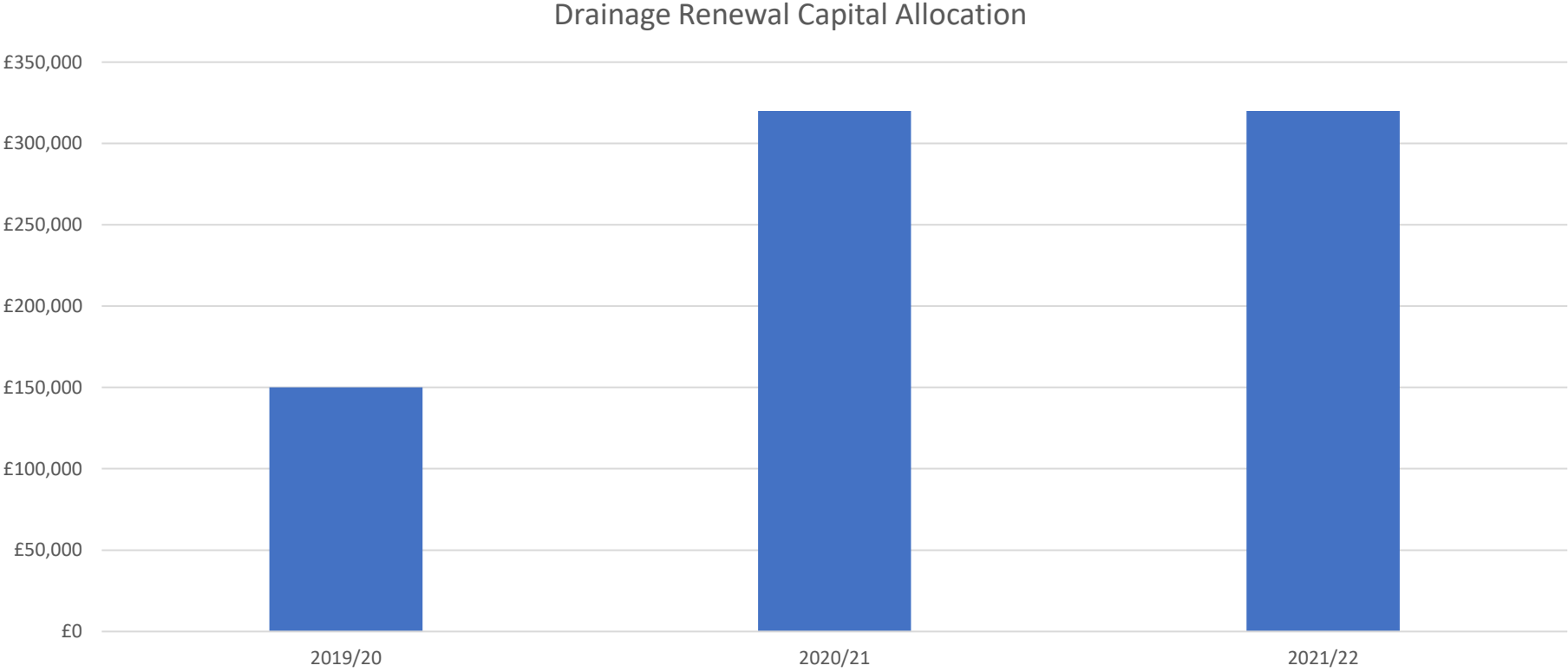
Structural and electrical testing still remain an issue with end of life stock

- Column replacement at 4% failure rate - £1.26m (columns from the LED roll out will fall due for re-testing)
- Sign poles replacement from structural testing (20% failure rate est from visual inspections – 7% included in above) - £400K
- Bollards (electrical failure/end of life), presently in annual budget allocation - £200K over four years to replace all units, saving on energy and reducing risk from old stock (40k p.a.)
- Cast iron column replacement (included in SOX spend to save program)
- Remove at risk Concrete columns - £600K. Whilst the majority of the above items remain part of the annual on going replacement/ end of life budget this must still remain separate from the energy challenges . Concrete column costs may also be married in with SON / SOX lighting replacement but will still be in the region of £1m . A three year programme at £325k p.a. will be required .
- An increasing risk but annually Cable Failure - £50K p.a.

Annual cost @ £2.075m to ensure safety and risk are addressed

Highway Infrastructure Asset Management Plan

Asset Management – Drainage



Highway Infrastructure Asset Management Plan

Asset Management – Structures

Structures Asset Type	Quantity
Road Bridges	62
Footbridges	39
Culverts	51
Subways	10
Retaining Walls	12
Other structures	4
Total	178

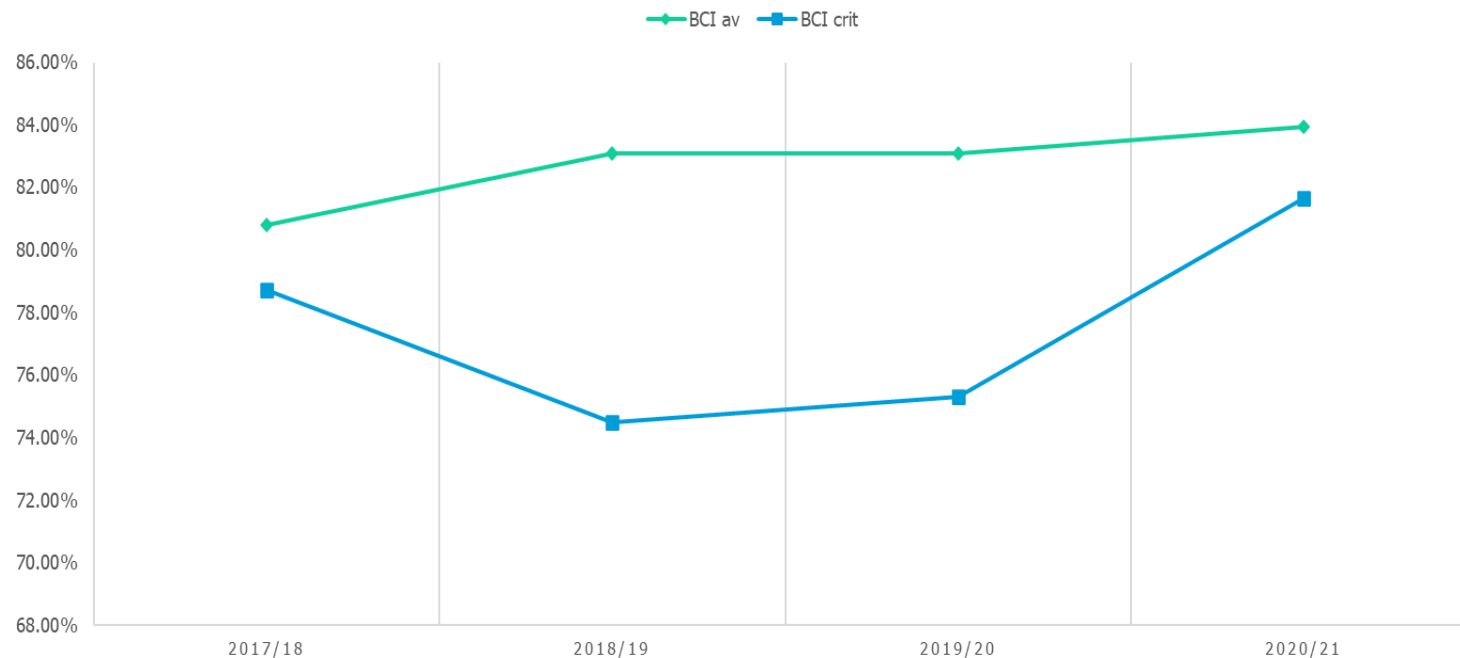
Gross Replacement Cost (GRC) in 2022 is £358,676,237. Many essential structural assets remain unnoticed but are essential to travel, safety and the ability of other assets to function.

Highway Infrastructure Asset Management Plan

The Approach to Asset Management – Structures

Condition Index	Condition Band				
	Very Good	Good	Fair	Poor	Very Poor
BCI _{AV}	>=90 & <=100	>=80 & <90	>=65 & <80	>=40 & <65	>=0 & <40
BCI _{CRIT}	>=90 & <=100	>=80 & <90	>=65 & <80	>=40 & <65	>=0 & <40

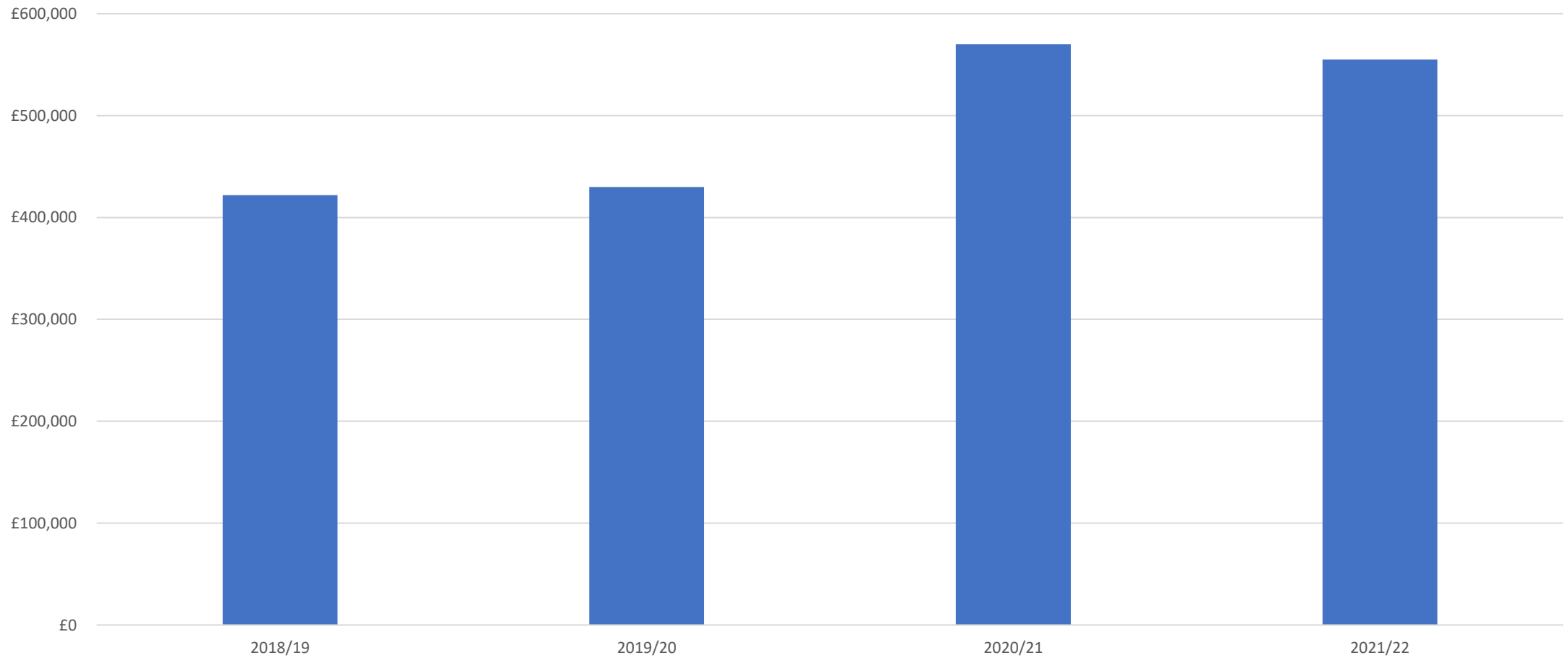
BCI AV & BCI CRIT BY YEAR



Highway Infrastructure Asset Management Plan

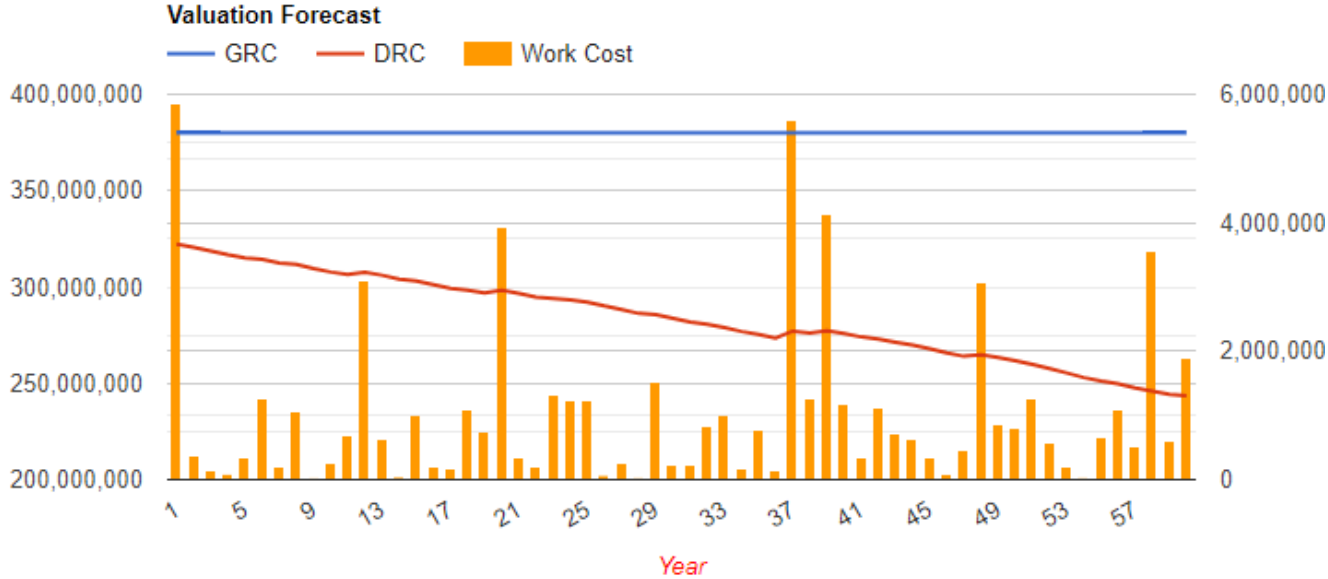
The Approach to Asset Management – Structures

Structures Capital Allocation



Highway Infrastructure Asset Management Plan

The Approach to Asset Management – Structures



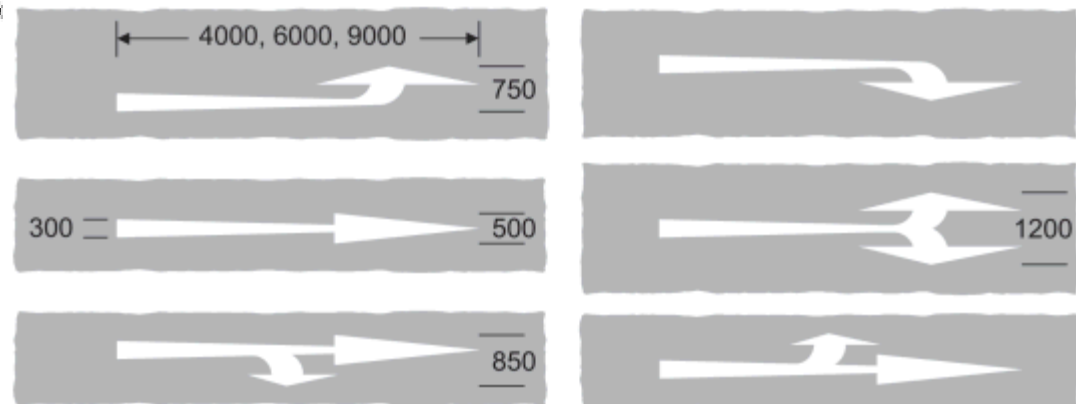
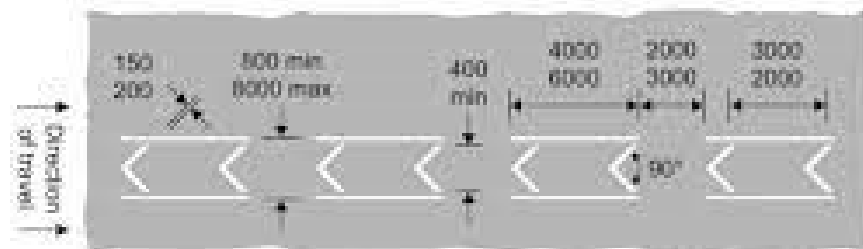
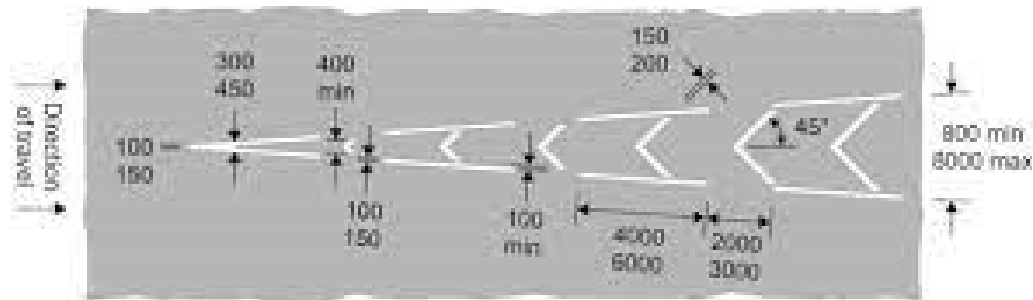
Show Approved Strategy Planned Preventive Planned Targeted Planned Do Minimum Unplanned Reactive

APPROVED STRATEGY SUMMARY

Year	DRC	Work Cost
1	322,181,067	5,870,569
2	320,547,232	370,946
3	318,679,682	151,986
4	316,745,209	92,883
5	315,085,085	349,910
6	314,341,561	1,249,614
7	312,505,610	205,106

Highway Infrastructure Asset Management

Asset Management – Road signs and Markings



Highway Infrastructure Asset

Soft Landscape

Asset	Quantity
Highway Trees	20,191 no.
Urban Grass Verges	21km
Grass or other landscape areas	133 no.
Shrubs	167 no.
Hedges	114 no.

Soft Landscape Maintenance Activity	Frequency
Urban Grass Verge Cutting	14-day cycle – April to October
Weed Control	Footways and Carriageway edge annually commences September
Tree Maintenance	As required for safety / lighting purposes
Shrub Maintenance	As required to prevent obstruction

The Approach to Asset Management

Asset Management Strategy

Thank You and any questions

Les Dagnall - Principal Engineering Manager - Amey Consulting

Les.Dagnall@amey.co.uk