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Dorset County Council Highways
Lifecycle Planning, Investment Scenarios
and Optimisation of Interventions
March 2019





Why Use Lifecycle Planning Tools?

Q5 Self Assessment - Lifecycle Planning – Dorset Highways Band 2

Understand impacts of investment / treatment strategies

Tools to enable us to engage with senior decision makers to make informed decisions

Maybe secure additional funding!





Lifecycle Planning - HAMP

Strategic documents – Highways Asset Management Plan (to include asset appraisal)

- Inventory – Accuracy / knowledge gaps / data collection strategies
- Condition – Validity / knowledge gaps / data collection



Lifecycle Planning Tools

Gaist Lifecycle Planning tools

HMEP Ancillary / Structures lifecycle planning toolkit

Carriageway Lifecycle Planning Toolkit

HMEP
Highways Maintenance and Structures Programme

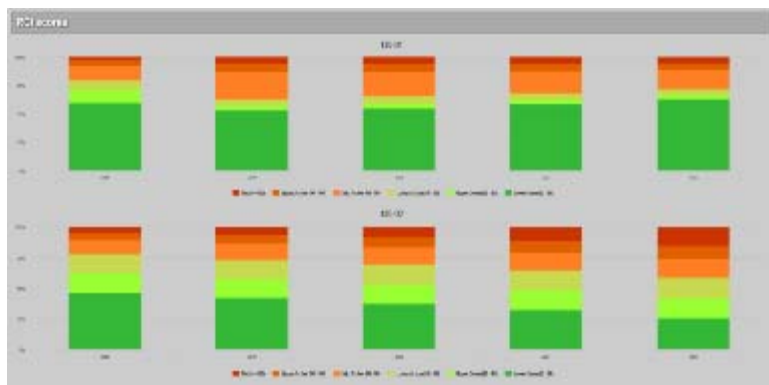
Issue: Street

Configuration	Condition Levels	Management work groups	Treatment Types																															
Start Year: 2011	Number of road lanes: 2	Number of management groups: 1	Number of treatment types: 1																															
Analysis Period: 20 yrs	<table border="1"> <thead> <tr> <th>Rank</th> <th>Description</th> <th>Mod. Date</th> </tr> </thead> <tbody> <tr><td>1</td><td>EM/GOOD</td><td>04</td></tr> <tr><td>2</td><td>Good</td><td>10</td></tr> <tr><td>3</td><td>Fair</td><td>8</td></tr> <tr><td>4</td><td>Poor</td><td>4</td></tr> <tr><td>5</td><td>Very Poor</td><td>0</td></tr> </tbody> </table>	Rank	Description	Mod. Date	1	EM/GOOD	04	2	Good	10	3	Fair	8	4	Poor	4	5	Very Poor	0	<table border="1"> <thead> <tr> <th>Grp</th> <th>Name</th> </tr> </thead> <tbody> <tr><td>1</td><td></td></tr> </tbody> </table>	Grp	Name	1		<table border="1"> <thead> <tr> <th>Grp</th> <th>Description</th> <th>Name</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> </tbody> </table>	Grp	Description	Name	1			2		
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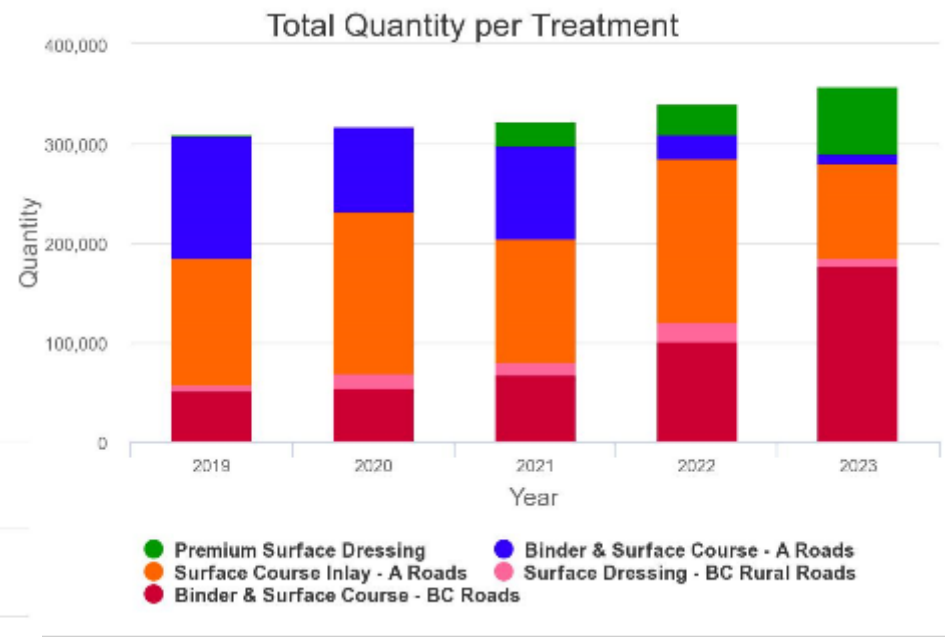
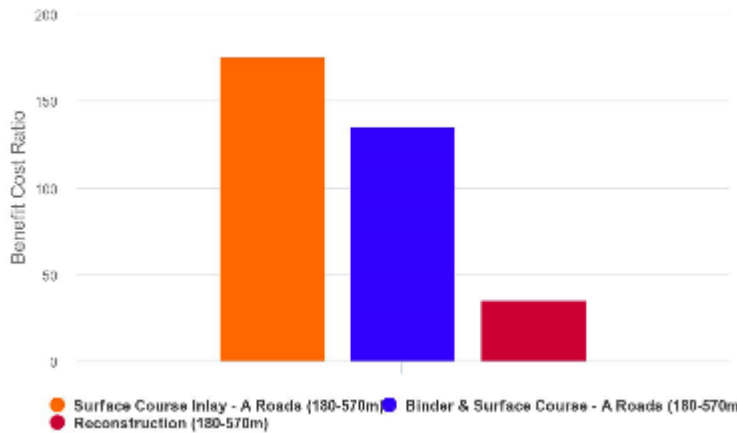




Lifecycle Planning – Outputs

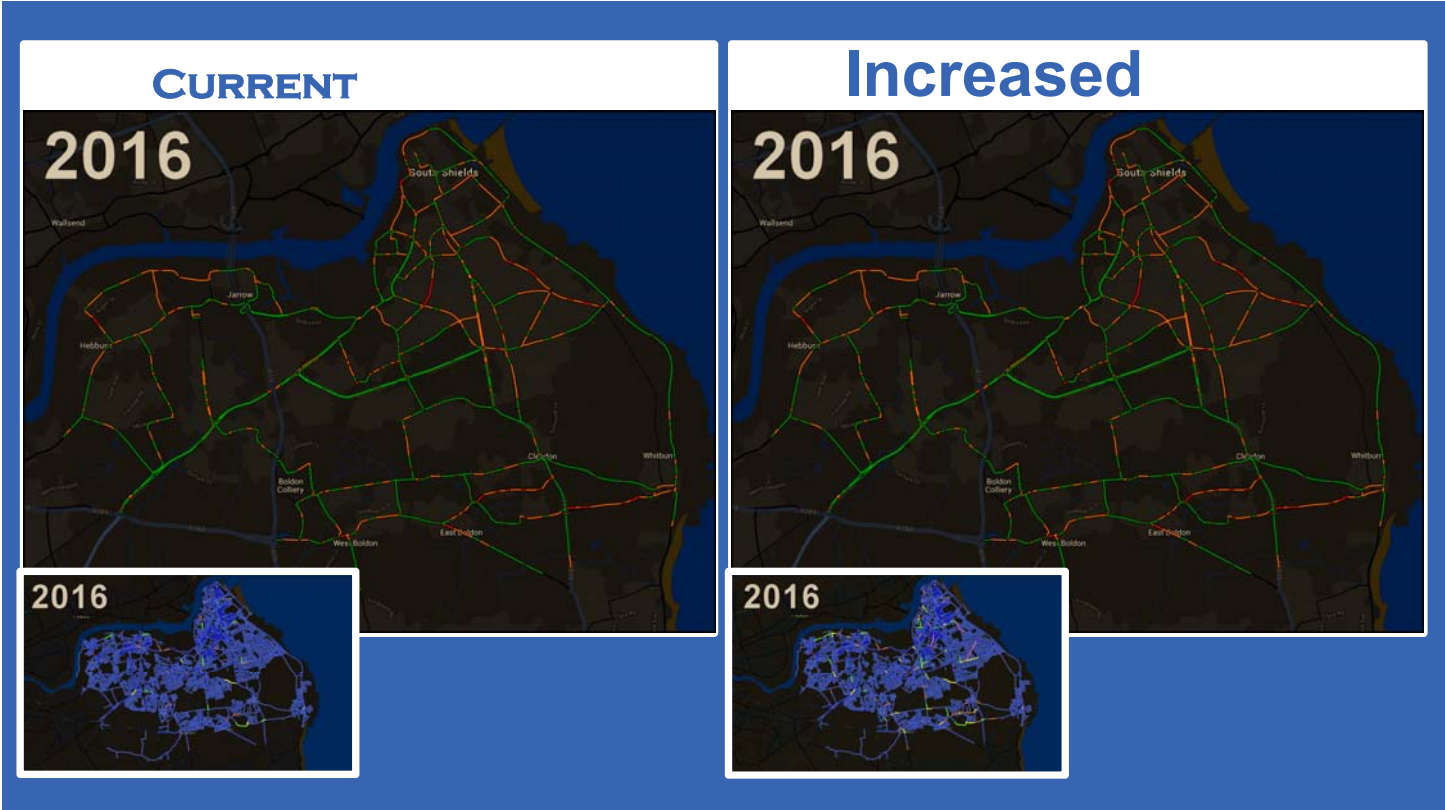


Treatment Options vs BCR





Lifecycle Planning – Outputs





Lifecycle Planning – Limitations

Generic deterioration models – condition data collection
(Horizons uses actual condition data)

Variable factors; ie weather, environments, use,
materials

Outputs – full reconstruction ?

Validity of condition data



Policy Development Panel

Panel of elected members (including Cabinet Member for The Natural & Built Environment) and Highways Managers / Technical Staff



2014 – Formed to discuss gaps in funding

2018 – Formed to consider investment options for:

- Revenue activities (eg drainage, pothole repairs, modular footway repairs, sign cleaning and Parish Maintenance Units)
- Levels of service – To consider capital investment options for carriageways



Policy Development Panel – Successes 2014

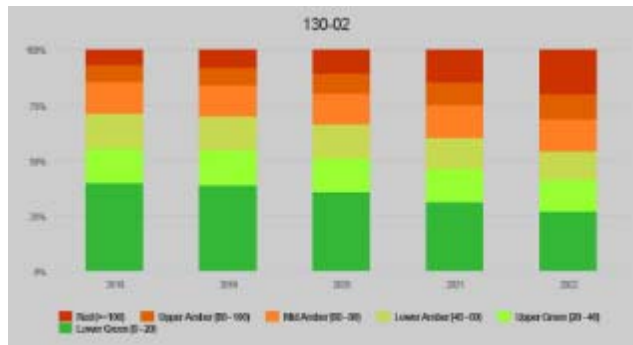
- Identified £5million gap in annual funding required to hold carriageway condition.
- Secured £4million additional corporate capital funding, split between 2015/16 and 2016/17 for carriageways
- Awarded £1.8million for Intelligent Transport Systems in 2015/16
- Awarded a further £1.5million split between 2017/18 and 2018/19 for carriageways





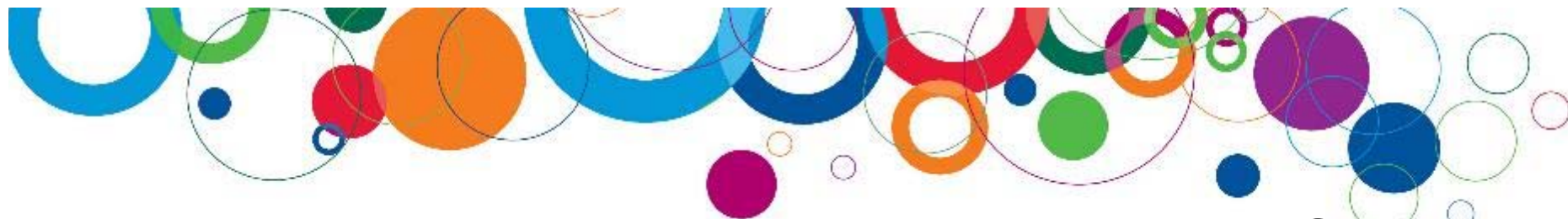
Policy Development Panel 2018 – Investment Options

Scenario 1 – Projected carriageway condition based on current investment / strategy



Scenario 2 - Maintain existing condition

Carriageway		Annual investment over five years		
		Investment required	Current Investment	Funding Gap
Hold existing condition				
Principal Road	4%			
Non Principal B&C Roads	5%	£11,628,282	£10,223,900	£1,404,382
Unclassified Roads	11%			



Policy Development Panel – Investment Options

Scenario 4 – To improve network condition to that of the best performing Highway Authorities (DMG Benchmarking Club)

Carriageway		Annual Investment over five years		
		Investment required	Current Investment	Funding Gap
Improve condition to that of the top performing authorities				
Principal Road	1%			
Non Principal B&C Roads	2%	£43,819,000	£10,223,900	£33,595,100
Unclassified Roads	5%			

The recommendation from the Panel to The Cabinet was to award additional funding to bridge the gap in funding as a minimum.

As a result Cabinet awarded £1.4million additional corporate funding to Highways.

£1.2million capital to support carriageway resurfacing strategies

£200K revenue funding for additional gully emptying and ditch clearance



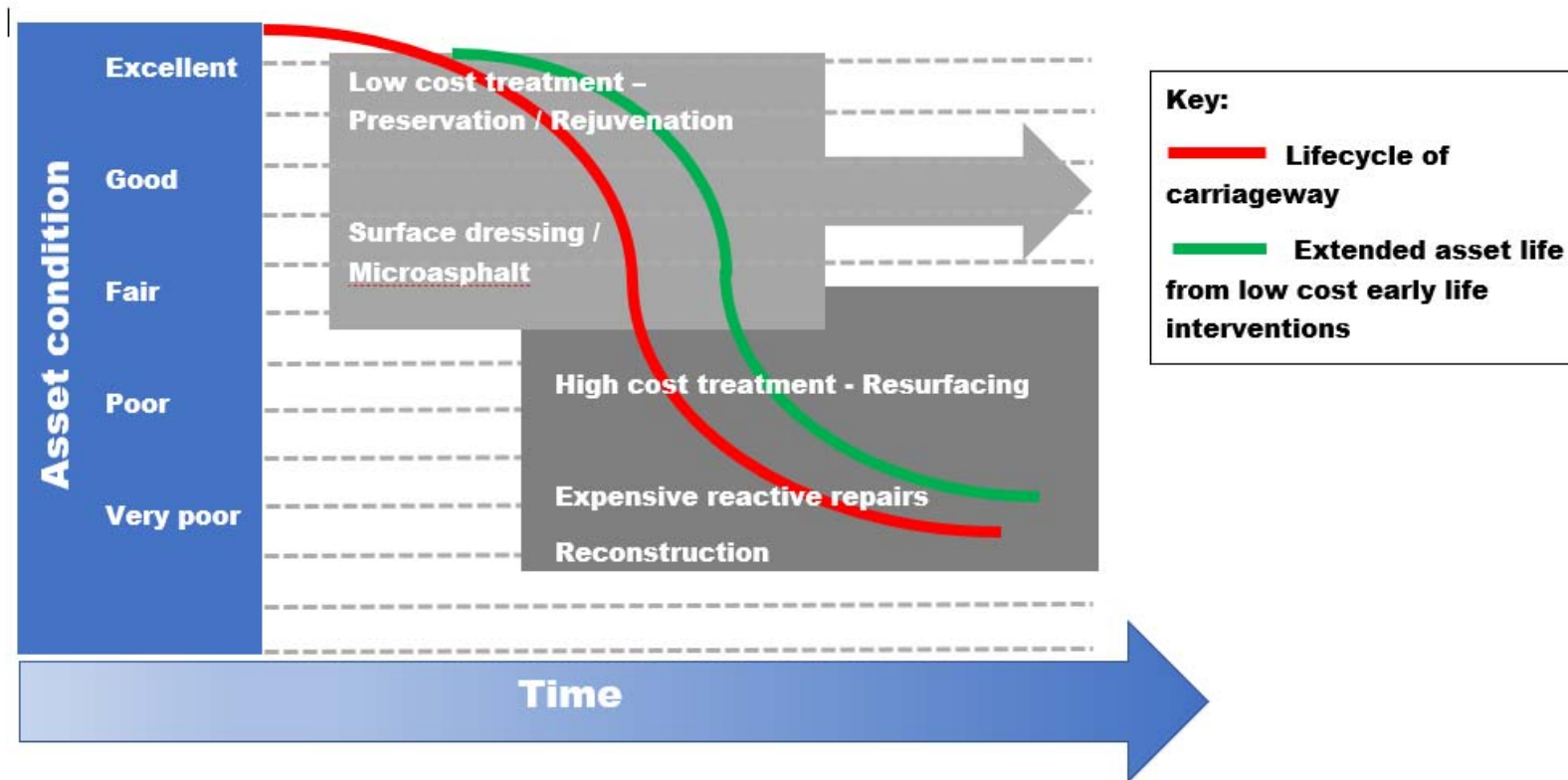
Next Steps for Dorset Highways

- Produce Investment scenarios for all highway asset groups – understand impacts of under investment in each and how that will impact on Service and Authority outcomes.
- Understanding benefits of investment
 - Economic benefit – HMAT
 - Social
 - Environmental





Carriageway Asset Life Cycle





Lifecycle Planning – Carriageway Life

- Material life – Early onset of deterioration
- Bitumen quality? – Refining process repeated
- Deterioration may also be linked to reductions in drainage activities – shrinking revenue budgets – correlation between flooding hotspots and road condition.
- Plastic in roads – theory that plastic content will reduce rate of oxidisation.



Lifecycle Planning – Early Interventions

Surface dressing / Premium surface dressing

Lockchip

Crack sealing

Microasphalt





Lifecycle Planning – Early Interventions

Retexturing

Ashpalt preservation / rejuvenation

Microplane - re-surface dress

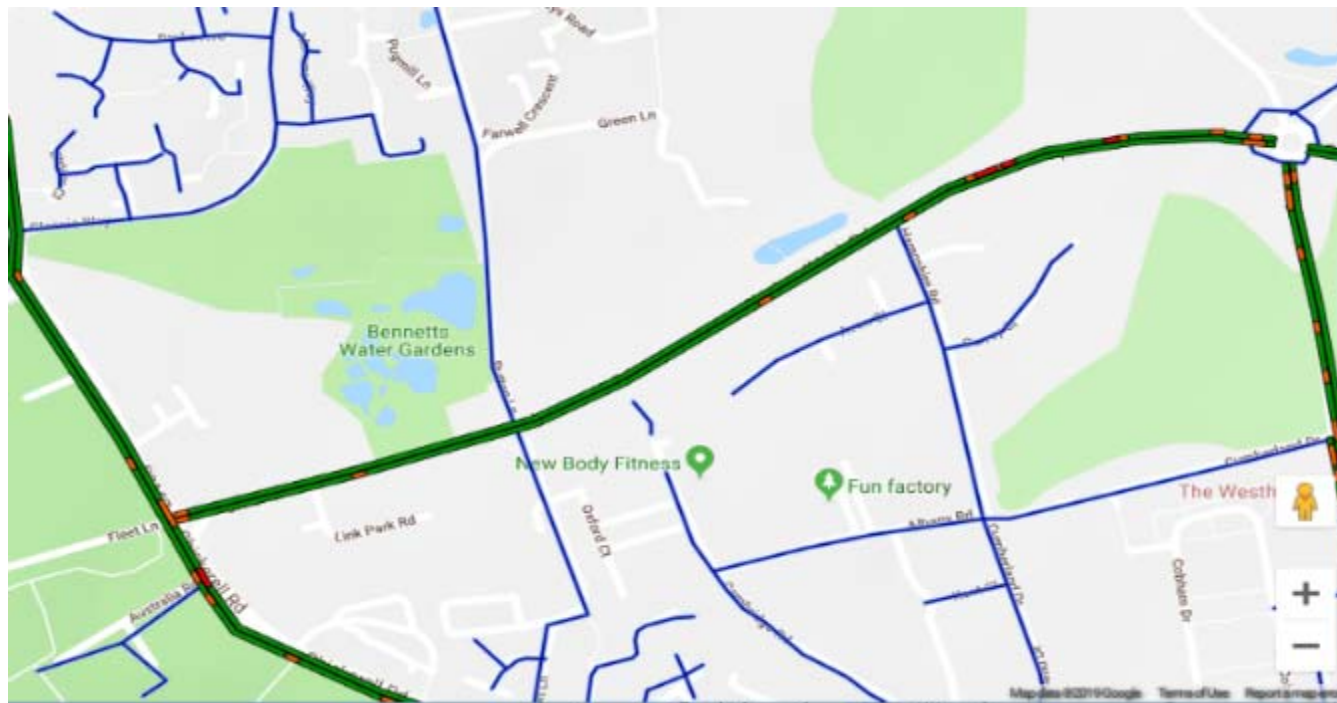




Optimising Interventions

What point do you intervene?

Amber?! Green! Example Chickerell Link Road





Optimising Interventions

Carriageway - Chickerell Link Road, Chickerell, West Dorset
heading: 72, HDOP: 0.00, Lng: -2.4958914965982, Lat: 50.6156104779319
Timestamp: 16:01 19/09/18, Speed 51.7

gaist

Front Left Rear Right

Download Play Full Screen

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Early Intervention – Carriageway Preservation

Weymouth Relief Road - £50million+
scheme ahead of 2012 Olympics

Completed 2011 - SMA

Solvent based asphalt preservation
treatment planned

Pre and post testing to measure texture
to develop knowledge around more
timely interventions – ie oxidisation /
deterioration.





Early Intervention – Planning Treatments

Monitoring Vs Predicting

A338 Spur Road –
£22million reconstruction
completed in 2016 –
Provisionally planned
treatment for 2022





Thank you for listening