

# 15 year Asset Management Strategy Development (Highways for the Future)

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23 January

# Project Background

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## Purpose

- To develop a 15 year outline programmes of works for all Highway and Transport Assets
- For the outline programmes to be based on agreed levels of performance that will be required from each asset under a number of categories that this project will determine.

## Background

- Routemap Review in conjunction with Infrastructure UK carried out in 2013 to challenge and support planning for highways maintenance and improvement post Operation Horizon.
- Review focussed on the potential for unlocking further efficiency and innovation savings through a new approach to asset management and the provision of an extended funding horizon of 15 years

# Project Objectives

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- To model the current state of Surrey's Highway and Transportation Assets
- To identify the performance state that is required by the various stakeholders of the highway and transportation network and to determine the performance measures to evaluate network performance
- To model a series of future state scenarios with their associated cost benefit ratios
- To translate the 'future state' down to the level of asset condition and consult on different scenarios
- To obtain all party agreement of the prioritisation and success criteria
- To develop a plan for how the approach will transition into the new way of asset planning that optimises the financial management of the network and supports the agreed long term benefits

# Example - Carriageway Asset Lifecycle

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Road condition information is used to generate potential schemes

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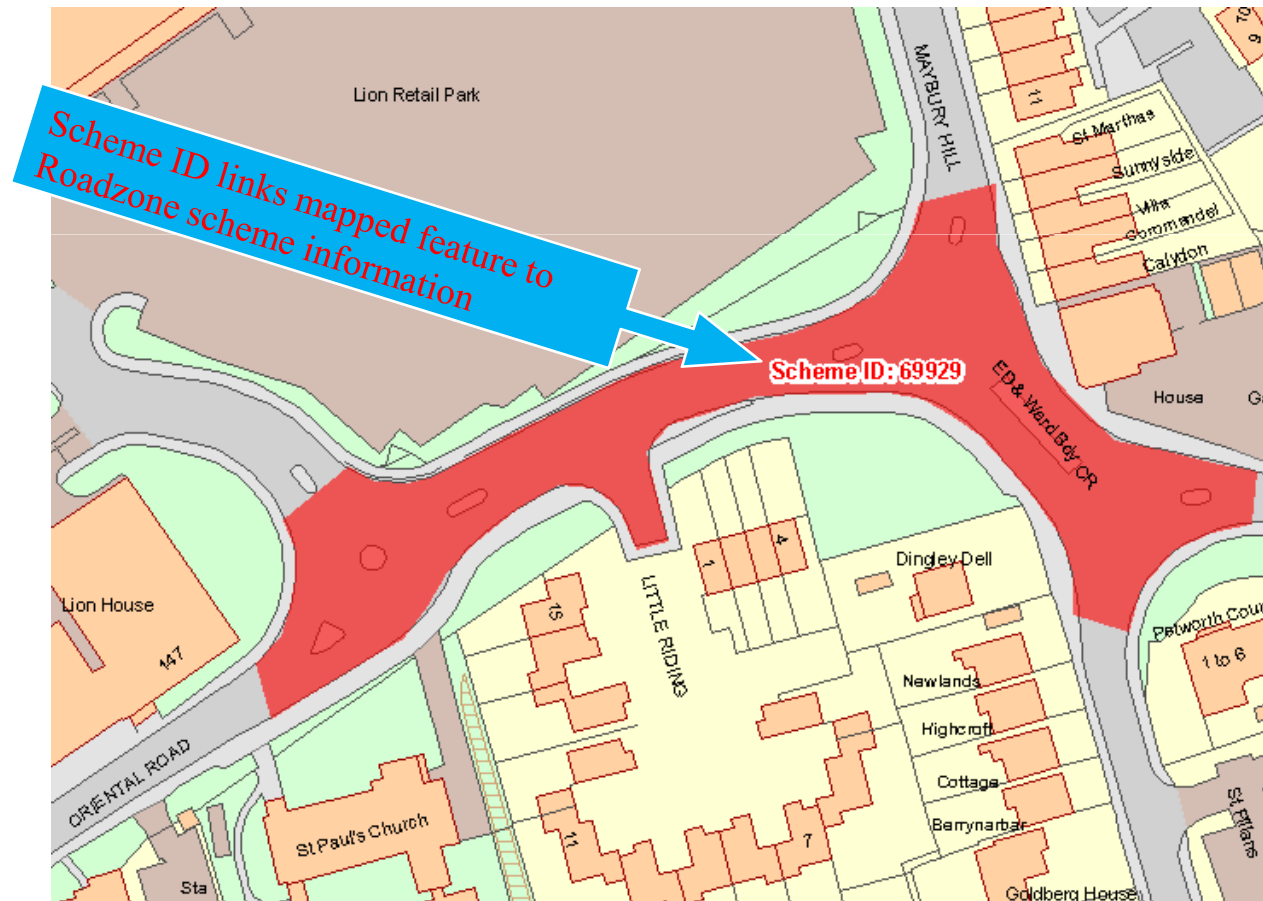
# Example - Carriageway Asset Lifecycle

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Engineers confirm which schemes will go ahead and a GIS polygon feature is created to represent the carriageway that will be treated

Unique Scheme ID is generated which associated the GIS feature to the scheme information from other systems such as Roadzone



# Example - Carriageway Asset Lifecycle

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Scheme information from Roadzone is linked to the mapped GIS feature for each scheme and provided along with other spatial data in Yotta Horizons mapping system

RoadZone > Project Horizon > Horizon Works List

## Horizon Works List

New ▾ | Actions ▾

Part A - Ref	Part A - Work Order No.	Road Number	Road Name	Part A - Extent of works	Town	Scheme Stat
<b>Count = 750</b>						
PH0001	3755775	D812	Spring Lane	WOODHURST LANE TO HALL HILL	Oxted	Stage 1 - Identification
PH0002	3756117	A25	Godstone Road	C82 CHURCH LANE TO C83 TANDRIDGE LANE	Oxted	Stage 4 - Planning
PH0003	3756138	D442	Silkham Road	CHALK PIT WOOD TO CHICHELE ROAD	Oxted	Completed
PH0004	3756177	D420	Gibbs Brook Lane	BROADHAM GREEN ROAD JNC – CROWHURST LANE	Oxted	Completed
PH0005	3756202	D426	Mill Lane	COLTSFOOT LANE TO WARREN LANE	Oxted	In Planning

# Example - Carriageway Asset Lifecycle

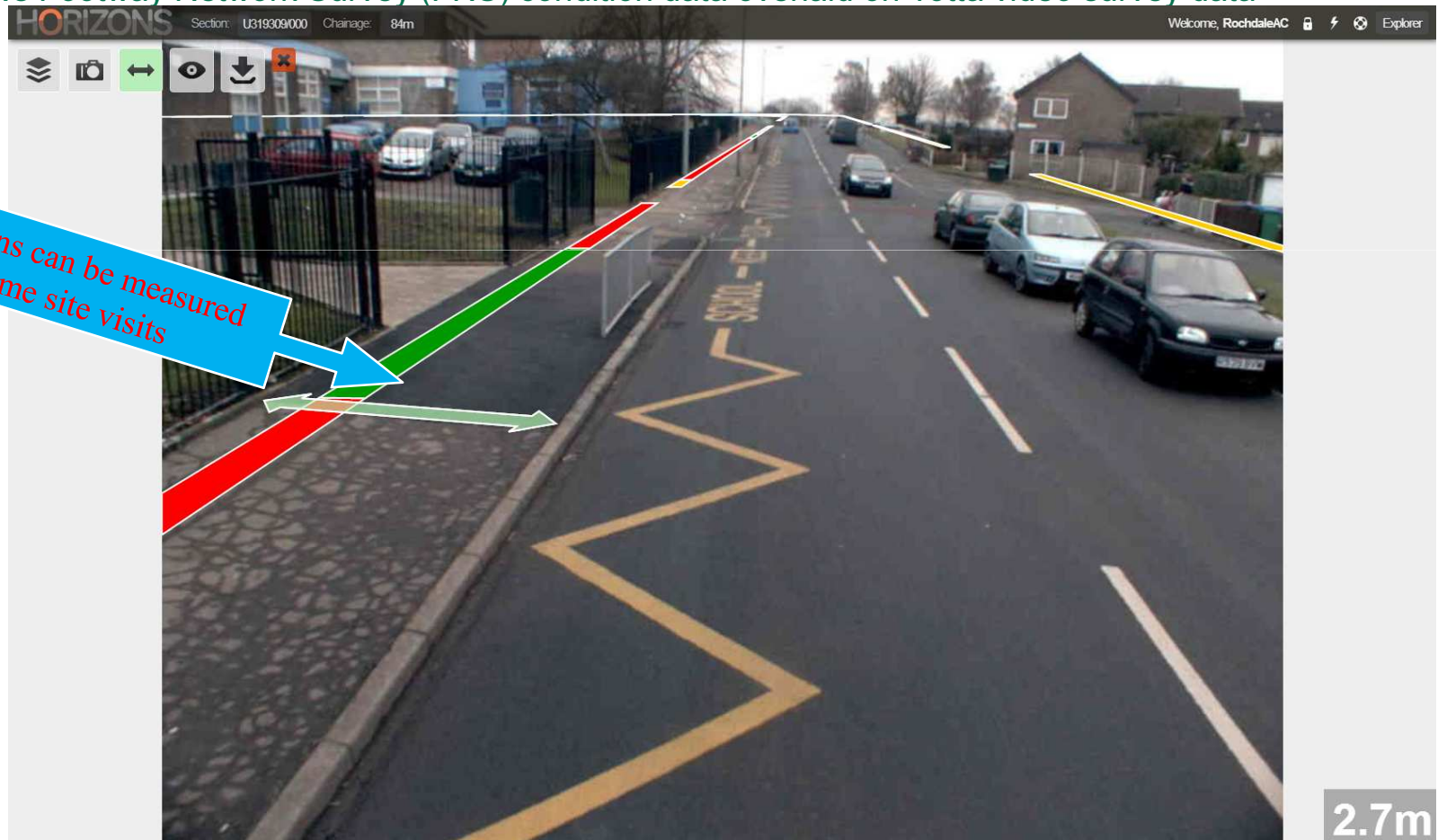
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As well as displaying scheme information, Yotta Horizons mapping system can be used by decision makers to visualise data in new ways

Below image shows Footway Network Survey (FNS) condition data overlaid on Yotta video survey data



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# Scenario Testing Tools

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Set scheme parameters and rules, and analyse the effect on network condition and budget

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**Treatment Editor**

Name: Surface Dressing  Critical  Area

Treatment Length: 500 m to 10000 m

Merge when: Efficiency  is greater than  %

Applies To:  FW  KB  VG  CW  
 A roads urban  A roads rural  B roads urban  
 B roads rural  C roads urban  C roads rural  
 Non-local authority  U roads rural  U roads urban

Costs m<sup>2</sup>: 2012 £

Cost Inflation:  %

Effects: Cracking Whole Carriageway     
 Cracking Wheel Track



# Scenario Testing Tools

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For budget planning purposes, different treatment options can be assigned based on road type and condition

**2013 Schemes : Configure Thresholds**

Texture mm

Road Type	0	0.4	0.7	1.4	+	-	Rating Curve
A roads rural	0	0.4	0.7	1.4	+	-	Rating Curve
A roads urban	0	0.3	0.6	1.4	+	-	Rating Curve
B & C roads rural	0	0.3	0.6	1.4	+	-	Rating Curve
B & C roads urban	0	0.3	0.6	1.4	+	-	Rating Curve

Ride Quality (LV10) sqr mm

Road Type	0	45	56	60	71	150	+	-	Rating Curve
A roads rural	0	45	56	60	71	150	+	-	Rating Curve
A roads urban	0	45	56	60	71	150	+	-	Rating Curve
B & C roads rural	0	45	56	60	71	150	+	-	Rating Curve
B & C roads urban	0	45	56	60	71	150	+	-	Rating Curve

Cancel Previous Next Save Changes

# Example - Carriageway Asset Lifecycle

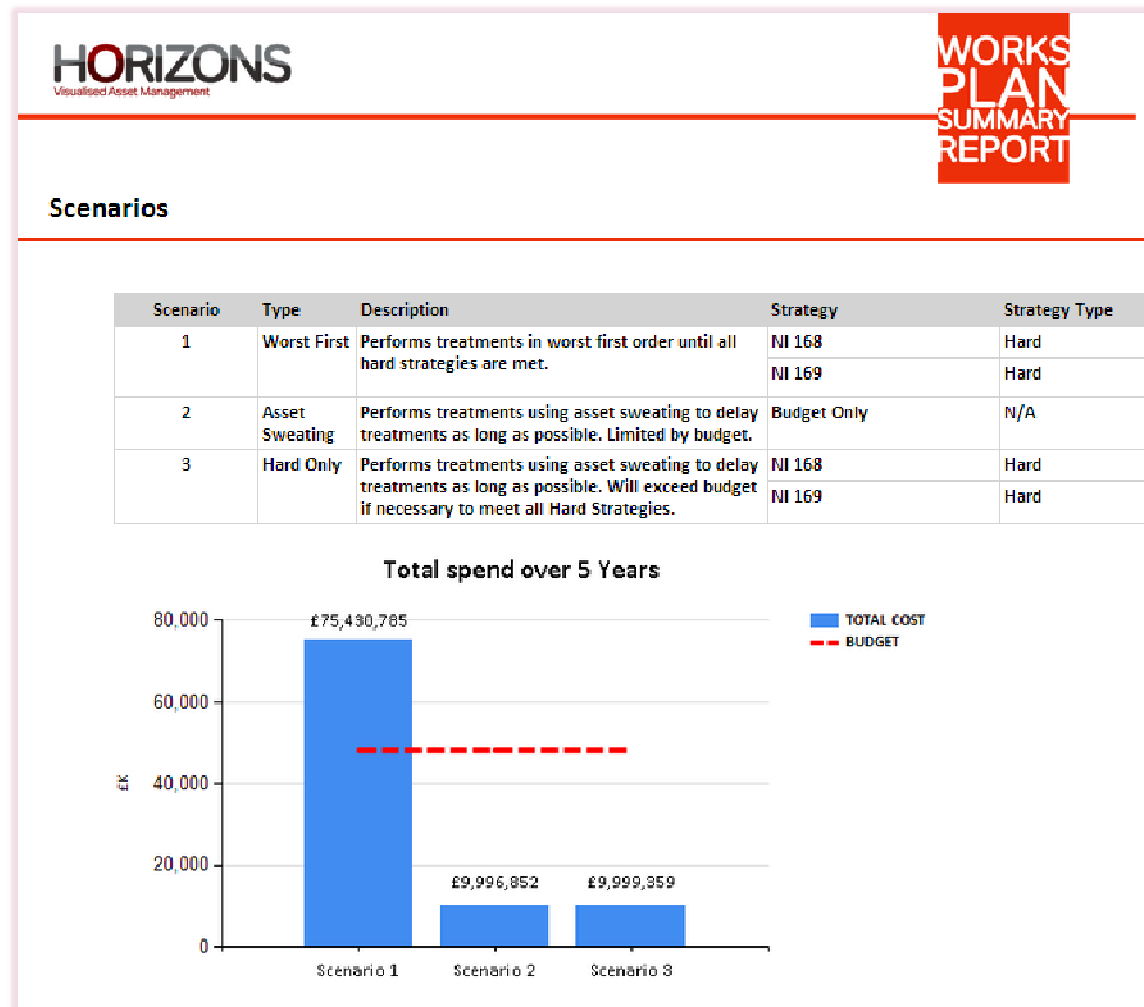
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Each scenario tested creates a report which will be analysed to compare the impact different outcomes have on network condition and budget

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# Other Assets

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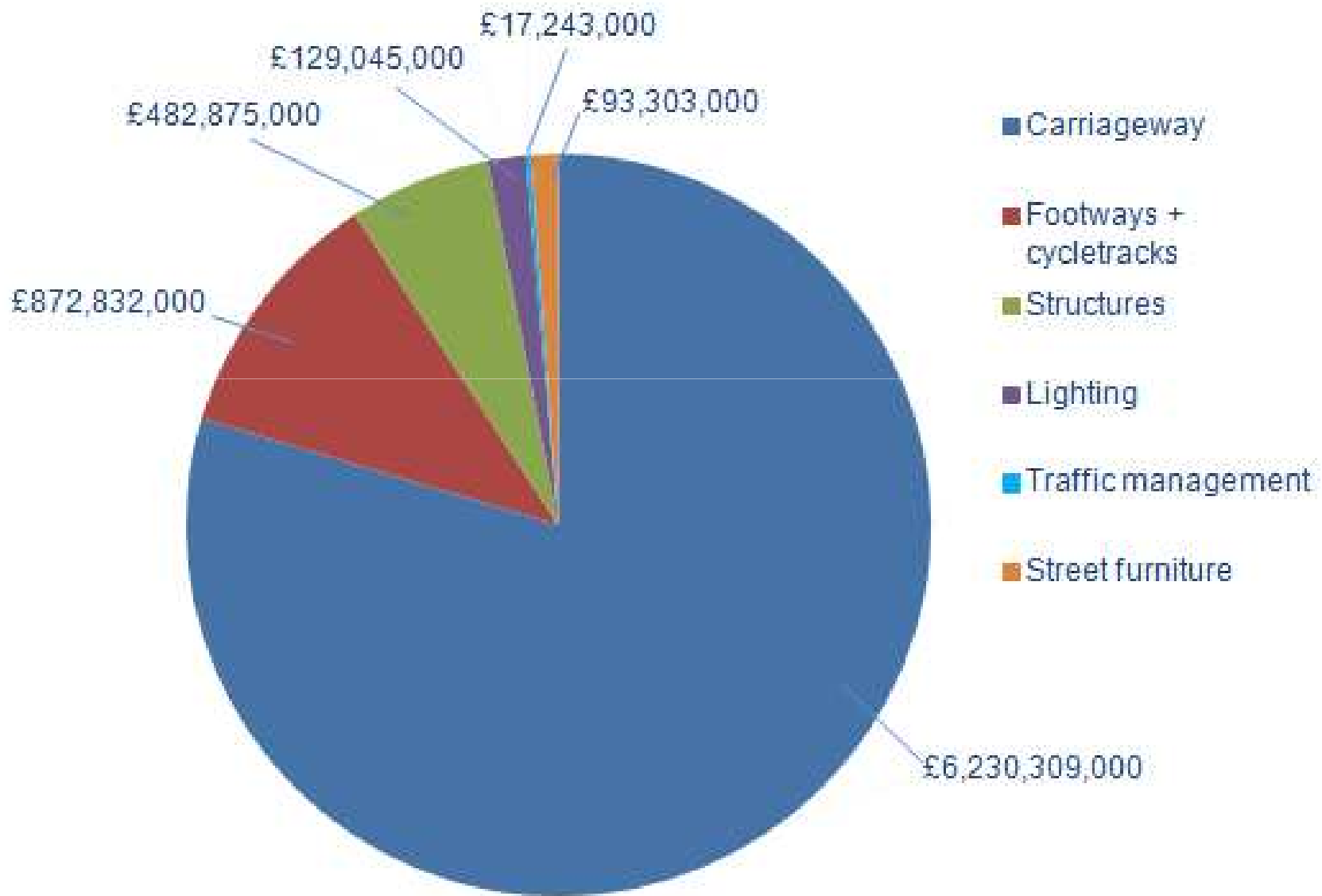
To ensure good financial planning and to maintain a high quality network, it is important that improved asset management practise is extended to all highway assets as well as carriageway...



- Safety Barriers
- Signs
- Footways & Cycletracks
- Structures
- Highway Lighting
- Street Furniture
- Traffic Management Systems
- Trees, verges & weeds

# Asset Value

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## Key Asset Headings – Further detail in subsequent slides

- Carriageway
- Footways & Cycletracks
- Structures
- Highway Lighting
- Street Furniture
- Traffic Management Systems
- Land

# Carriageway Assets

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Level 1 Asset Type	Level 2 Asset Group	Level 3 Components that level 2 implicitly covers
Carriageway	<p>Area (square metre) based elements</p> <ul style="list-style-type: none"> <li>▪ Flexible pavements</li> <li>▪ Flexible composite pavements</li> <li>▪ Rigid concrete pavements</li> <li>▪ Rigid composite pavements</li> </ul> <p>Linear elements</p>	<ul style="list-style-type: none"> <li>▪ Pavement layers</li> <li>▪ Other surface types, eg paved</li> <li>▪ Central reservation, roundabout, lay-by, traffic island, etc</li> <li>▪ Earthworks (embankments and cuttings,</li> <li>▪ retaining walls height &lt;1.35m)</li> <li>▪ Traffic calming</li> <li>▪ Fords and causeways</li>   <li>▪ Kerbs</li> <li>▪ Line markings</li> <li>▪ Road studs</li> <li>▪ Road drainage elements (gullies, drains, etc, but not large structures)</li> <li>▪ Boundary fences and hedges</li> <li>▪ Hard strip/shoulder verges/vegetation</li> </ul>

# Footway & Cycletrack Assets

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Level 1 Asset Type	Level 2 Asset Group	Level 3 Components that level 2 implicitly covers
Footways and Cycletracks (attached to the road or segregated)	<ul style="list-style-type: none"> <li>▪ Footways</li> <li>▪ Pedestrian areas</li> <li>▪ Footpaths</li> <li>▪ Cycletracks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pavement layers</li> <li>▪ Other surface types, eg block paving, unbound materials</li> </ul>

# Structures Assets

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Level 1 Asset Type	Level 2 Asset Group	Level 3 Components that level 2 implicitly covers
Structures	<ul style="list-style-type: none"> <li>▪ Bridges (span &gt;1.5m)</li> <li>▪ Cantilever road sign</li> <li>▪ Chamber/cellar/vault</li> <li>▪ Culverts (span &gt;0.9m)</li> <li>▪ High mast lighting columns (height &gt;20m)</li> <li>▪ Retaining walls (height &gt;1.35m)</li> <li>▪ Sign/signal gantries and cantilever road signs</li> <li>▪ Structural earthworks, eg strengthened/reinforced soils (all structures with an effective retained height of 1.5m or more)</li> <li>▪ Subway: pipe</li> <li>▪ Tunnel (enclosed length of 150m or more)</li> <li>▪ Underpass/subway: pedestrian (span of 1.5m or more)</li> <li>▪ Underpass: vehicular</li> <li>▪ Special structure</li> </ul>	<ul style="list-style-type: none"> <li>▪ All elements identified on the CSS inspection pro forma</li> <li>▪ Smaller water-carrying structures are considered as road drainage</li> </ul>



# Highway Lighting Assets

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Street Lighting is managed under PFI arrangements, however needs to be considered in order to coordinate programming across the network

Level 1 Asset Type	Level 2 Asset Group	Level 3 Components that level 2 implicitly covers
Highway lighting	<ul style="list-style-type: none"> <li>▪ Lighting columns</li> <li>▪ Lighting unit attached to wall/ wooden pole</li> <li>▪ Heritage columns</li> <li>▪ Illuminated bollards</li> <li>▪ Illuminated traffic signs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Column and foundations</li> <li>▪ Bracket</li> <li>▪ Luminaires</li> <li>▪ Control equipment, cables</li> <li>▪ Control gear, switching, internal wiring cabling (within ownership)</li> </ul>

# Street Furniture Assets

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Level 1 Asset Type	Level 2 Asset Group	Level 3 Components that level 2 implicitly covers
Street furniture	<ul style="list-style-type: none"> <li>▪ Transport</li> <li>▪ Highway</li> <li>▪ Streetscene/amenity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Traffic signs (non-illuminated)</li> <li>▪ Safety fences</li> <li>▪ Pedestrian barriers</li> <li>▪ Street name plates</li> <li>▪ Bins</li> <li>▪ Bollards</li> <li>▪ Bus shelters</li> <li>▪ Grit bins</li> <li>▪ Cattle grids</li> <li>▪ Gates</li> <li>▪ Trees/tree protection, etc</li> <li>▪ Seating</li> <li>▪ Verge marker posts</li> <li>▪ Weather stations</li> </ul>

# Traffic Management System Assets

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<b>Level 1 Asset Type</b>	<b>Level 2 Asset Group</b>	<b>Level 3 Components that level 2 implicitly covers</b>
Traffic management systems	<ul style="list-style-type: none"><li>▪ Traffic signals</li><li>▪ Pedestrian signals</li><li>▪ Zebra crossings</li><li>▪ In-station</li><li>▪ Information systems</li><li>▪ Safety cameras</li></ul>	<ul style="list-style-type: none"><li>▪ Different types</li><li>▪ Complete installation</li><li>▪ Variable message signs</li><li>▪ Vehicle activated signs</li><li>▪ Real time passenger information</li></ul>

# Land Assets

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<b>Level 1 Asset Type</b>	<b>Level 2 Asset Group</b>	<b>Level 3 Components that level 2 implicitly covers</b>
Land	<ul style="list-style-type: none"><li>▪ Freehold land</li><li>▪ Rights land</li></ul>	Features on the land are not taken into account in the valuation

# Other Assets

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## Other Assets

- Environmental

- Grass Cutting
- Horse verges
- Weed control

- Countryside

- E.g. Basingstoke Canal
- Under their own management – out of scope?

- Depots

- Vehicles

- Waste Management

# Next Steps

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- Member engagement through officer/member working group
- Full report to ETSC's March Committee