

Highways England Asset Management Approach

CIHT Asset Management Panel

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To cover

- Who are we?
- Our assets
- Asset Management vs Management of assets
- IAMP and the Information Strategy & Vision
- Asset Steward Reviews & Risk Based Approach
- Asset Management Communication

Who are we ?

- Government company charged with operating, maintaining and improving the strategic road network in England.
- Formerly the Highways Agency, became a government company in 2015

Aim to ensure the road network is:

- free flowing – where routine delays are infrequent and journeys are reliable
- safe and serviceable – no-one should be harmed when travelling or working
- accessible and integrated – so people are free to choose their mode of transport and can move safely across and alongside our roads

We further aim to:

- support economic growth with a modern and reliable road network that reduces delays, creates jobs, helps business and opens up new areas for development
- Ensure our activities result in a long term and sustainable benefit to the environment

Our Assets

The SRN consists of 9 asset types....



30,000 lane kilometers



8,000 miles of embankments and earthworks



20,000 highway structures



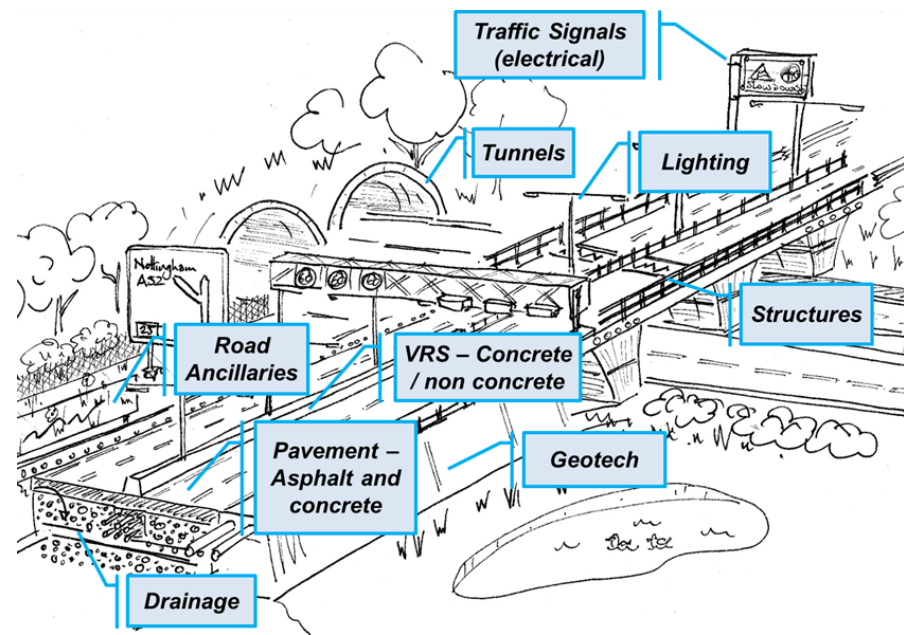
8,000 miles of fences and barriers



70,000 technology sensors



25,000 miles of ditches and drainage assets



The SRN is a critical part of the UK economic infrastructure

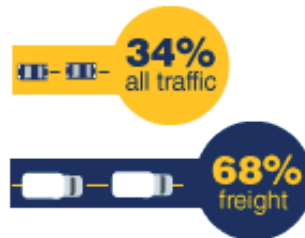
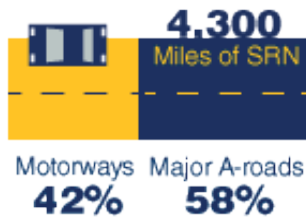
Connect the nation



Supports the wider transport network



Drives the economy



The SRN connects the nation and drives the economy

- SRN-dependent sectors employ **7.4 million** people
- These sectors contribute **£314 billion** to the economy per year
- They are expected to grow by **35%** by 2030 (GVA growth per year) and this will generate an additional **£110 billion**

Logistics



Primary materials



Manufacturing



Construction



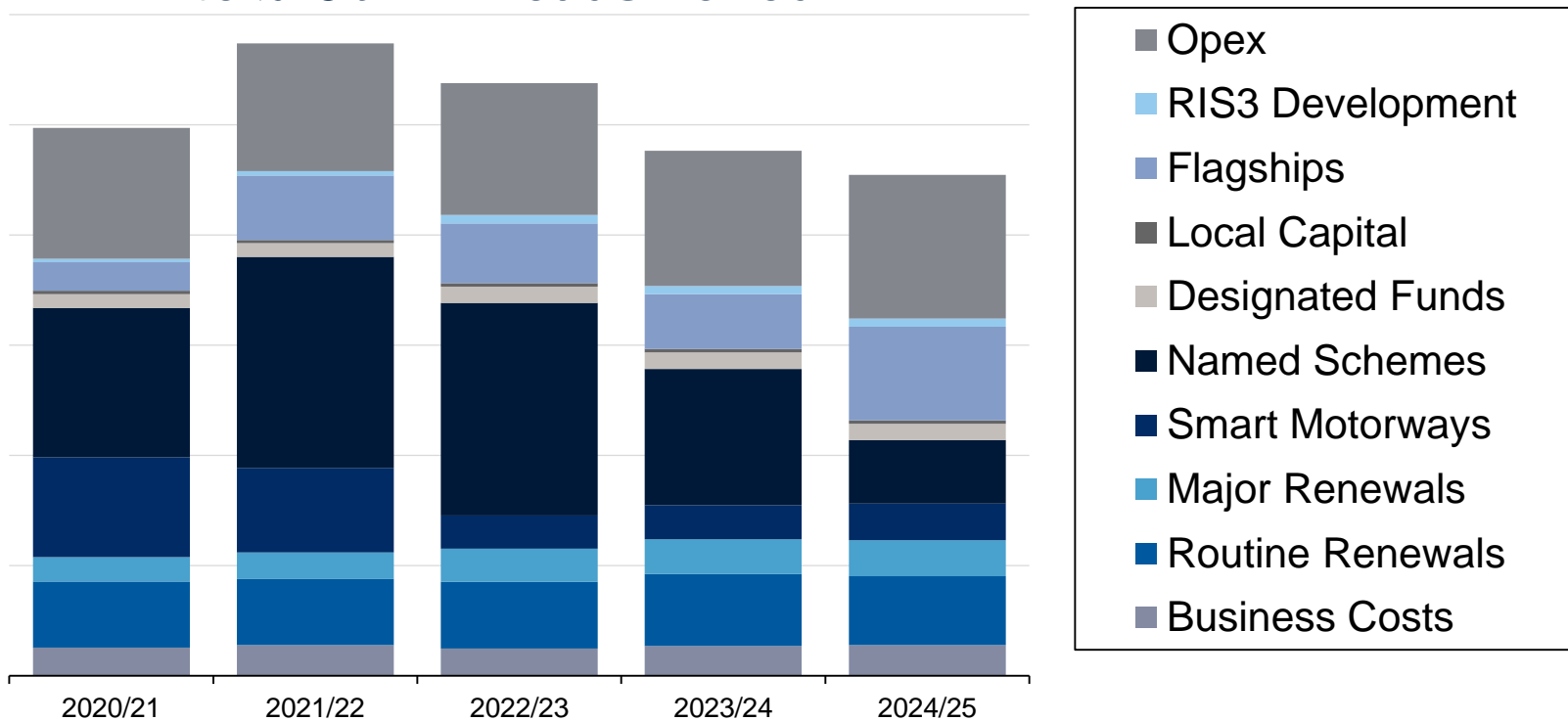
Source: Highways England, Socio-Economic Analysis Future Forecasts and the Strategic Road Network, 2017.

“Of all the property sectors, the SRN is of greatest importance to the logistics and industrial market as their success is dependent on efficient access to suppliers and customers. The sector is the most likely to generate high frequency, long distance trips, often moving large and heavy volumes, and as such is most reliant on the SRN.”

Cushman & Wakefield, 2016

Highways England Funding Scale

£15bn in Roads Period 1 rising to £25bn in Roads Period 2



Asset Management vs Management of Assets

- Highways England (and formerly as Highways Agency) mature understanding of managing assets.
- Not fully connected approach across all parts of the company – whole life cycle aligned activity.
- Highways England Licence requirement –

In complying with 5.9 and 5.10, the Licence holder should adopt a longterm approach to asset management consistent with ISO 55000 standards.

- Recognition that being a good asset management organisation is more than just managing assets.
- Drivers for change –
 - *Increased capital expenditure*
 - *Move to in-house network maintenance and operation decisions*
 - *Licence requirement*

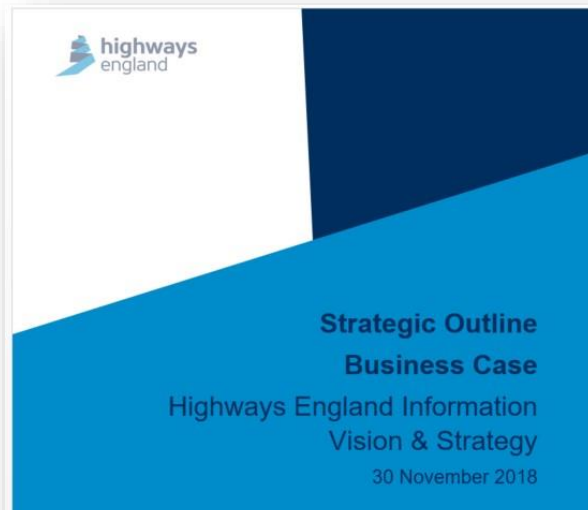
The Informed Asset Management Plan (IAMP)

OE Step	Theme	Action Statement	Products and Output	Timeline
All	All	<p>Delivering on business needs – providing services, products and outputs that are meeting business needs for end-to-end asset management.</p> <p>Our asset management improvement plan focuses on improving consistency and efficiencies and will be updated to align with Operational Excellence, Major Projects and other relevant programmes across the Company.</p>	<p>Define “touch points” across the Company</p> <p>Define asset management improvements</p>	<p>End of January 2018 – <i>Complete and Ongoing Company-wide communications</i> Communicate our asset management vision to the Company by end of 2018 and publish ‘Asset Management handbook’ by March 2019.</p> <p>End of March 2018 - <i>Complete</i></p>
0 – 6	<p>DATA <i>We know our assets and how they perform</i></p>	<p>Good asset data – filling gaps in asset data adopting a risk-based approach to data collection, focusing on business need, from asset creation and improvement to maintenance and operations.</p> <p>Based on good understanding of business need, we will provide the framework for consistent asset data collection and management, along with easily accessible asset data (including financial), enabling the Company to truly understand our assets, their behaviour and condition.</p>	<p>Inventory</p> <p>Condition</p> <p>Visualisation System (AVIS)</p> <p>Single Data Standard (ADMM)</p>	<p>Identify the company’s asset data / information needs and fill associated critical gaps by March 2020.</p> <p>Define condition data needs to support Asset Delivery – complete by end of 2018.</p> <p>Currently in operation - roll out new version to support Asset Delivery by end of 2018.</p> <p>Currently in use – finalise and successfully embed in the Company by end of 2019.</p>
2 – 4	<p>INFORMATION <i>We know how to safeguard asset integrity</i></p>	<p>Decision Support Tools – providing the tools and information to enable the company to confidently predict future asset condition and develop optimised renewal programmes, sustaining the right condition at the right cost.</p>	<p>DST vision and roadmap</p> <p>Pavements DST</p> <p>Structures DST</p>	<p>Produce a vision and roadmap for a set of DSTs to support Asset Delivery, inform decision making and enable making the case for funding – March 2018 - <i>Complete</i></p> <p>Currently in use – mature and embed to drive the renewal programme by March 2019.</p> <p>Currently in use – mature and embed to drive the renewal programme by March 2019.</p>
1 – 4		<p>Our DST vision and roadmap summarises our plan for incremental implementation and embedment of DSTs across the Company to improve our decision making capability for all asset classes.</p>	<p>Other Assets</p> <p>Asset plans for all asset classes</p>	<p>Currently developing prototypes for Drainage and Geotechnics – by end of March 2019.</p> <p>Currently in place – mature and embed to support Asset Delivery by March 2020.</p>
1 – 4		<p>Asset Strategies – defining how we maintain all asset classes based on evidence and management of risks, to provide consistency and value for money throughout the assets’ lifecycle.</p>	<p>Asset Strategies</p>	<p>Asset Strategies for all asset classes embedded across the Company by end of 2019. A National Infrastructure Plan bringing together Strategies for all asset classes and aligning with RIS2 business case published by the end of 2019.</p>
0 – 9		<p>Assurance – providing assurance so we can trust our asset data and have effective asset management processes implemented across Highways England</p>	<p>Asset management assurance framework (including data)</p>	<p>Implement regional assurance function by the end of 2018.</p>
0 – 2	<p>KNOWLEDGE <i>We have confidence in the decisions we make</i></p>	<p>Asset Management Framework – providing a publicly available policy and strategy that describes how asset management is delivered and is recognised across Highways England as the key document on asset management.</p>	<p>AM Policy</p> <p>AM Strategy</p> <p>AM Framework</p> <p>Asset Information Strategy</p>	<p>AM Framework in place - roll out in Asset Delivery areas by the end of 2018.</p> <p>AM Framework embedded in Company and driving Asset Delivery by end of 2020.</p>
0 – 9		<p>Risk Based Approach (RBA) – providing a consistent framework to guide risk based and evidence based decision making across Highways England - underpinned by safety, optimal whole life costing and the delivery of efficiencies.</p>	<p>Risk Based Approach</p> <p>RBA toolkit</p>	<p>Define RBA by the end of 2018 - <i>Complete</i></p> <p>Develop and roll out RBA Toolkit by end of 2019, with trials starting in South West in autumn 2018 – <i>trial underway</i></p> <p>Embed across the Company by end of 2020.</p>

-----Training, upskilling and capability building-----

This is our plan for embedding an informed asset management approach across Highways England. The focus is on immediate priorities for the remainder of RIS1 and on preparing the Company for RIS2.

Information Vision & Strategy



1

Alignment of our vision

Our Information Vision is to enable Highways England to realise sustainable value from better information to support strategic and operational decision-making that benefits individuals, businesses, communities and the economy

2

Data-to-intelligence

At the heart of the Information Vision is a sustainable data-to-intelligence capability operated within the business to enable the business to capture, store, join, view and exploit information to support new and different ways of working.

3

Data as an asset

A principle underpinning the Information Vision is the treatment of data as an asset. This recognises the activity and cost of creating data, maintaining it, renewing it and ultimately decommissioning it, in addition to the value the data is able to unlock.

4

Data risk and governance

Data security attribution will be managed through data classifications held in the master data model, and a framework for data governance will provide the means by data risk will be owned and managed.

5

Single information model

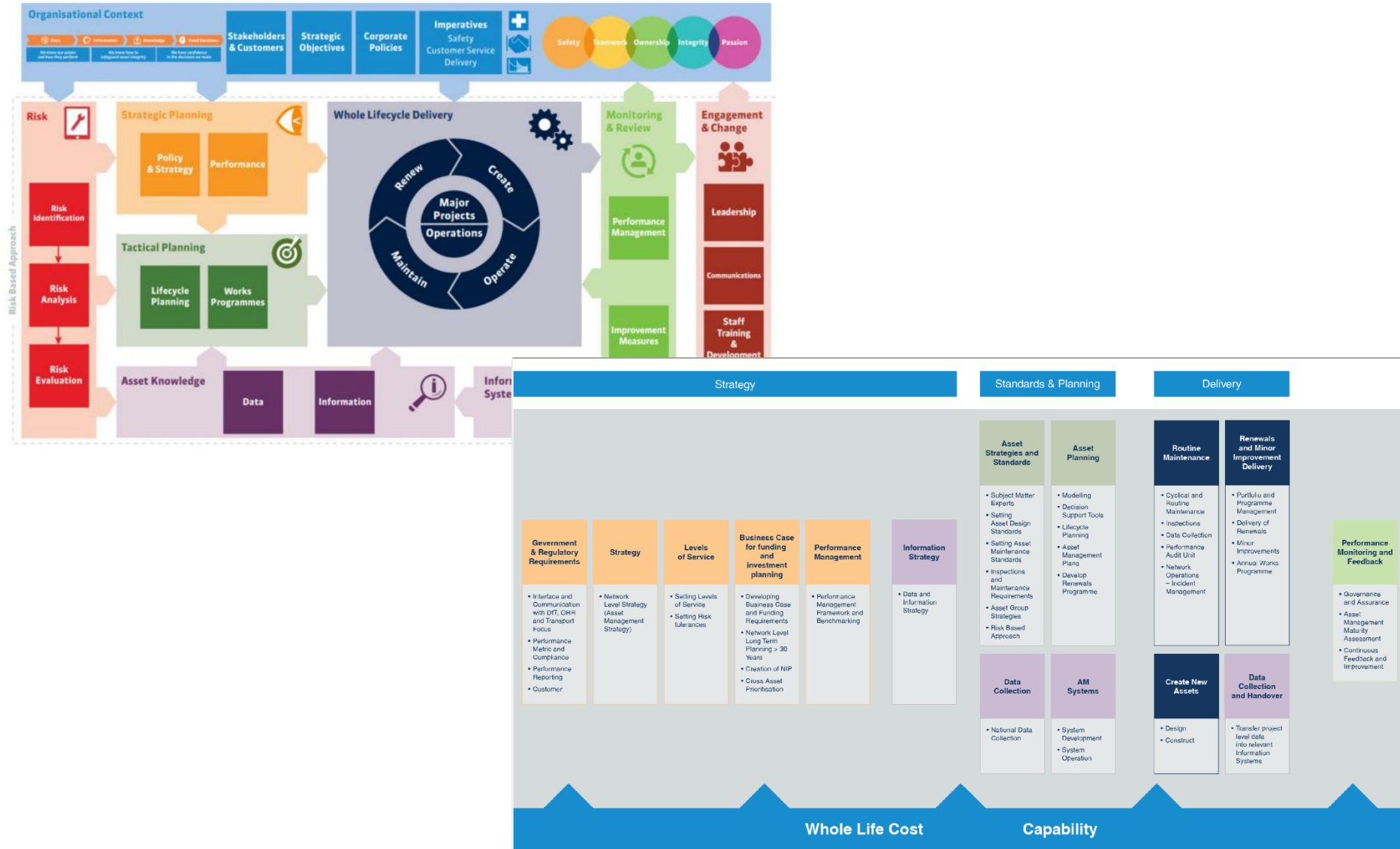
The Information Vision and Strategy requires Highways England to maintain a single information model describing all the types of information required for decision-making. This is not the same as a single information system; the information can reside in multiple systems, locally to the business or in the cloud.

6

Information maturity journeys

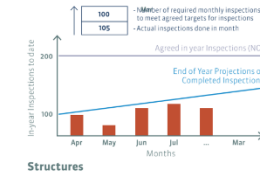
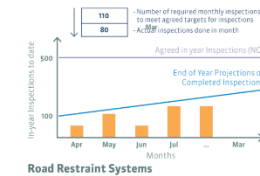
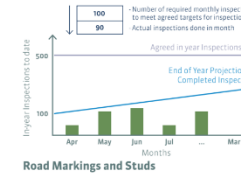
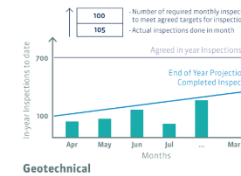
The data-to-intelligence information services will be designed to support each directorate advance in their own maturity journeys, and to enable data from one directorate to support related decision-making in other directorates. This is a significant move away from the siloed 'systems and data' approach the business employs today.

Asset Management Approach



Asset Steward Reviews

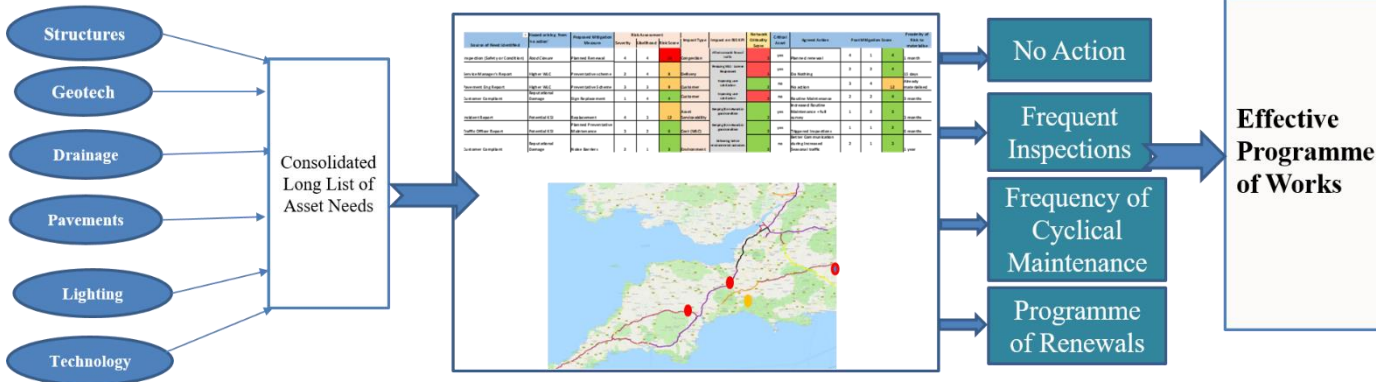
Framework Theme	Question ID	Question
Risk	1	Risk Management
Risk	2	Network Criticality
Risk	3	Risk Analysis
Strategic Planning	4	Strategic Documentation
Strategic Planning	5	Regional Performance Targets
Tactical Planning	6	Lifecycle Planning
Tactical Planning	7	Forward Works Programmes
Tactical Planning	8	Lifecycle Asset Management Plans
Asset Knowledge	9	Asset Information
Asset Knowledge	10	Asset Information Management
Delivery - Create	11	New Asset Introduction
Delivery - Operate	12	Inspections
Delivery - Operate	13	Incident Management
Delivery - Operate	14	Optimisation of Works
Delivery - Operate	15	Operational Risk Assessments
Delivery - Maintain	16	Routine Maintenance Programmes
Delivery - Renew	17	Renewals Programmes
Review	18	Asset Management Maturity
Engagement & Change	19	Roles and Responsibilities
Engagement & Change	20	Capability Assessment
Engagement & Change	21	Stakeholder Management
Engagement & Change	22	Change Management



Dashboard for Reporting Progress on Asset Inspections



Risk Based Approach

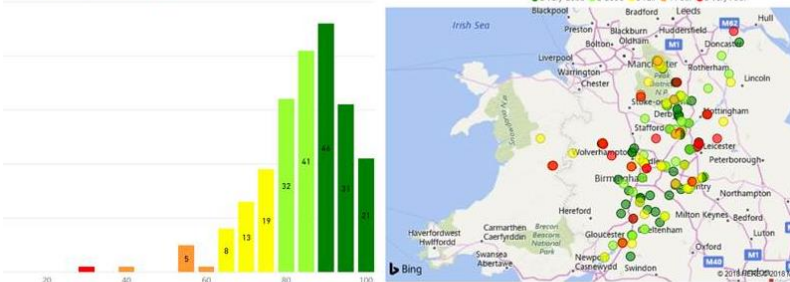


Risk Assessment			Impact Type	Impact on RIS KPI	Network Criticality Score
Severity	Likelihood	Risk Score			
4	4	16	Congestion	Affects smooth flow of traffic	5
2	4	8	Delivery	Reducing WLC - License Requirement	5
3	3	9	Customer	Improving user satisfaction	2
1	4	4	Customer	Improving user satisfaction	5

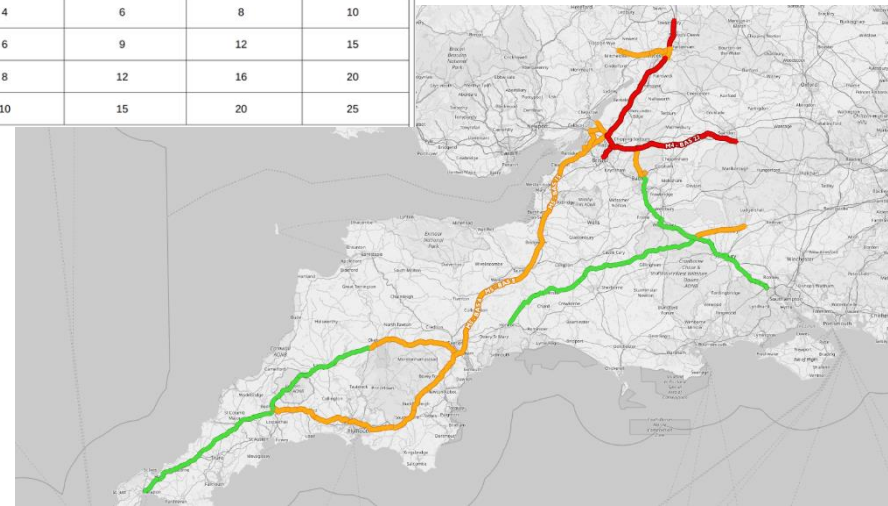
Table D.1 Risk value, likelihood and severity of outcomes that may be assigned to qualitative data for the purposes of assessment

Likelihood (L) x Severity (S) = Risk value (R)		Severity (S)				
Likelihood (L)	Very unlikely; Highly improbable, not known to occur	Minor harm; Minor damage or loss no injury	Moderate harm; Slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage
	Unlikely; Less than 1 per 10 years	1	2	3	4	5
	May happen; Once every 5-10 years	2	4	6	8	10
	Likely; Once every 1-4 years	3	6	9	12	15
	Almost certain; Once a year or more	4	8	12	16	20
	5	10	15	20	25	

Very Good 2 Good 3 Fair 4 Poor 5 Very Poor



Owner Type	Structure Type	Structure Class	Route Supported Type	Obstacle Crossed Type	Recommended PI Interval	Condition Band	Structure C
Other	Aqueduct/Pipe Bridge	Bridge	Aqueduct	Watercourse - navigable	6	Very Poor	
STW	Other	Bridge	Aqueduct	Watercourse - navigable	6	Very Poor	
	Sewer/Trent Water	Bridge	Bridge	Local Road - unclassified	Watercourse - non-navigable	6	Poor
NTRY (WTV)	Other	Bridge: Pedestrian/Cycle (single span)	Footbridge	Watercourse - navigable	Very Poor		



Communications

- Communicating our approach and connecting our wide range of activities is recognised as critical.
- Commencing a series of communications, starting with animation we have developed to explain why we are improving our asset management approach –
[Asset Management Animation](#)