Maintenance Requirements Plan: Area 12

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Area 12 Maintenance Requirements Plan V2.0
Document and Hold Point Acceptance

MRP Stage Gate (Release mechanism is confirmation amended MRP has been checked by M&O Manager)				
Role	Organisation	Name	Signature	Date
Maintenance & Operations Manager	A-one+	[redacted]	[redacted]	24/05/17

MRP Hold Point (Release Mechanism is written acceptance by Service Manager)				
Role	Organisation	Name	Signature	Date
Service Manager	Highways England			

Hold points for each Maintenance Requirement are identified in the table below. The release mechanism is written acceptance by Highways England of each Maintenance Requirement:

Maintenance Requirement Hold Point (Release Mechanism is written acceptance by Highways England)					
Maintenance Requirement		Organisation	Name	Signature	Date
Part 5	Safety Inspections	Highways England			
Part 6					
6.1	Drainage	Highways England			
6.2	Fences Screens and Environmental Barriers	Highways England			
6.3	Geotechnical Assets	Highways England			
6.4	Lighting	Highways England			
6.5	Paved Areas	Highways England			
6.6	Road Markings and Road Studs	Highways England			
6.7	Road Restraint Systems	Highways England			
6.8	Road traffic Signs	Highways England			
6.9	Soft Estate	Highways England			
6.10	Structures Maintenance	Highways England			
6.11	Sweeping and Cleaning	Highways England			
6.12	Tunnels	Highways England	NA	NA	NA
6.13	Camera Maintenance Plan	Highways England			

[Part 0] Document Structure

This Maintenance Requirements Plan has been developed to address the requirements of AMOR V1.15 (Part 0, page 15) in the context of the Area 12 Asset Support Contract.

The following table sets out those requirements and where each is addressed.

	Requirement	Section / Document Reference
1	Details of sources of information about condition data, including the identification of asset data gaps and a mitigation approach.	Part 6, detailed for each maintenance requirement
2	The Provider's risk based Processes and Procedures for Inspection and Make Safe and Repair including taking into account the Employer's requirements covered in the key operational processes described above (AMOR Section 0).	Parts 2 & 3, showing where these elements are covered in our quality plan
3	Detail of risk assessments of the Area Network (refer to Identify Maintenance Requirements Sub-process in Annex 24 of the Service Information - Quality Plan Framework) and assumptions made about categorisation and prioritisation of Defects.	Part 5 for our safety inspections and Part 6 and each maintenance requirement
4	Programme of Inspections	Available on our Integrated Area Programme via IBMS+
5	Response and Repair timescales covering Defect identification, verification, response and repair	Part 4 with any exceptions recorded against the specific maintenance requirement
6	How work is packaged to minimise network occupancy (including road space booking requirements, TM requirements and Temporary Traffic Regulation Orders).	Available in Network Occupancy Plan via IBMS+
7	Hold points with release mechanisms specific to each Maintenance Requirement.	Detailed for each maintenance requirement within Part 6
8	Details of planned preventative maintenance including programme, who is going to undertake the work, frequency of operations, timescales. The same level of detail is required for activities undertaken by Provider's suppliers.	Available on our Integrated Area Programme via IBMS+
9	The plan is a 'live document' and must be updated accordingly.	
10	**MRP Hold Point:** The Provider must prepare and submit the Maintenance Requirements Plan in accordance with Part 0 of the Asset Maintenance and Operational Requirements four weeks prior to Access Date. **Release Mechanism:** Written acceptance by the Service Manager of the Maintenance Requirements Plan.	

[Part 1] Our overall approach to the risk based execution of inspections and maintenance in accordance with AMOR

The features of our approach achieve effective management of the primary risks which we are required to identify, assess, evaluate and manage (risks to the safety and availability of the network), as well as the provider outcomes and provide the Employer with a special defence under section 58 of the Highways Act.

The risk based approach required by AMOR is key to the delivery of the ASC. Our approach is designed to ensure a consistent interpretation and delivery of the risk based approach. Our approach to the AMOR risk based execution of inspections, maintenance and operations is illustrated in the Risk Management cycle below:

Alignment with AMOR Part 0 is achieved by implementing these tasks within our sub-processes and procedures within our quality management system, IBMS+. Our planned activities are documented in this Maintenance Requirements Plan through the Integrated Area Programme and the evidence of our activities being completed successfully and on time will be stored in IAM IS.

The following table sets out detail of the activities of the risk management cycle and shows in which of the Annex 24 sub-processes they occur.

Task 1: Maintain Network Intelligence	NN-IM-00 Identify Maintenance Requirements, NN-AM-00 Asset Management
Up to date network intelligence underpins an effective risk based approach. It is this intelligence on which risks are assessed and controls are developed. All staff and the wider team (Highways England, Collaboration Hub, RTMC, Supply Chain) have a role to play in maintaining the intelligence, for example through the submission of Watchman Cards.	
Task 2: Understand Network Character	NN-IM-00 Identify Maintenance Requirements
A clear understanding of the character of the network is needed to accurately evaluate the risks. Defined Maintenance and Operations (M&O) routes ensure that local variations in the nature of the routes are considered when assessing risks and controls. Each route has be assigned an Area Maintenance teams will be responsible for the maintenance and appearance of their route.	
Task 3: Assess Network Risks and Identify Risk Controls (Safety Inspections)	NN-AC-00 Inspect Asset Condition
To ensure the safety of the road user and to maximise the availability of the network, we have developed a regime of safety inspections. This takes into account the character of the route, traffic flows and other key risks including the levels of flooding and pothole history. In some cases, the inspection	

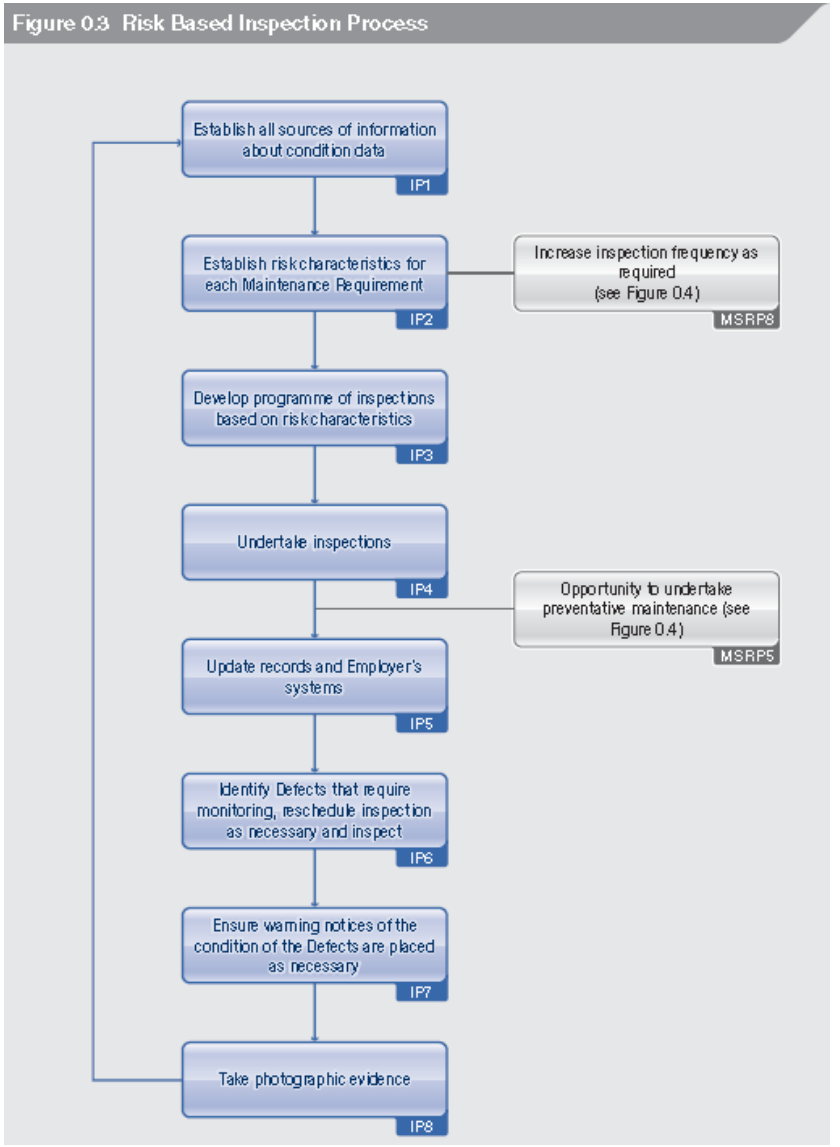
frequency is increased from accepted levels used in the Routine and Winter Service Code to better manage the risks to the road user. These are set out in Part 5 of this plan.	
Task 4: Assess risk to asset and identify risk controls (Detail inspections and Planned Maintenance)	NN-AC-00 Inspect Asset Condition, NN-IM-00 Identify Maintenance Requirements
Risks to the asset will be managed through a combination of timely detail inspections to evaluate the asset condition and using a programme of planned preventative maintenance. The frequency of both the inspection and maintenance activities has been evaluated for each M&O route, which ensures that specific risks such as a particular drainage issue or deterioration associated with an ageing pavement are addressed. These are set out in Part 6 of this plan.	
Task 5: Prioritise Asset Inspection and Maintenance Activities	NN-AC-00 Inspect Asset Condition, NS-DMRP-00 Develop Maintenance Requirements Plan
Our Area Maintenance Managers and our Asset Inspection Manager will maintain a programme of inspections and maintenance activities as documented in the MRP, which will be incorporated in the Integrated Area Programme (IAP), alongside all other planned activities on the network. They will prioritise and target activities to ensure that key risks are addressed in their areas, for example ensuring amenity grassland areas are maintained, or drainage is cleared in advance of forecast rain. They will ensure that all of these decisions are captured.	
Task 6: Deliver asset Inspection and Maintenance Activities	NN-AC-00 Inspect Asset Condition, DS-DMR-00 Deliver Maintenance Requirements
The planned, prioritised inspection and maintenance activities are carried out in accordance with the accepted MRP and all actions undertaken are recorded in IAM IS (or the appropriate Annex 6 system.)	
Task 7: Control Defects	DS-DMR-00 Deliver Maintenance Requirements
Defects will be repaired in accordance with the response times and actions in the MRP (Part 4). Our preferred approach is to use a permanent repair to eliminate the need for return visits to site. This is a safer method of working for our road workers and reduces disruption for road users. Defects will be reported and repairs recorded through IAM IS.	
Task 8: Demonstrate Compliant Delivery	NN-AC-00 Inspect Asset Condition, DS-DMR-00 Deliver Maintenance Requirements
Compliance with our accepted MRP is measured and reported monthly through CPF scores. Additionally, our Inspection & Maintenance Assurance Officer provides additional confidence to Highways England by undertaking independent verification of completed inspection and maintenance activities	
Task 9: Validate Risk Controls	NN-AC-00 Inspect Asset Condition, DS-DMR-00 Deliver Maintenance Requirements
Following completion of inspection and maintenance activities, we review their effectiveness in managing the identified risks. The risks documented in MRP will be used to assess if our activities have been effective.	
Task 10: Adjust Risk Controls	NN-AC-00 Inspect Asset Condition, NS-DMRP-00 Develop Maintenance Requirements Plan
Where our risk controls require updating to reflect the needs of the network, adjustments will be made to ensure that risks are managed going forward. This adjustment can be made at any time as the need emerges and the process controls will be used to ensure that all changes to the Maintenance Requirements are captured and accepted.	

[Part 2] How we have adopted the risk based inspection process in AMOR Part 0 (page 8) as part of our approach

The table below shows how the activities within the AMOR inspection process have been adopted as part of our risk based approach within our process designs for: NN-AC-00 Inspect Asset Condition (IAC), NN-IM-00 Identify Maintenance Requirements (IMR), and DS-DMR-00 Deliver Maintenance Requirements (DMR). IP Activities below links to the activities in AMOR part 0 page 8 (shown to the right)

IP Activity	Annex 24 Process and Activity Reference
IP1	2.01 IAC activities 10 and 11
	2.02 IMR activity 2
IP2	2.01 IAC activity 14
	2.02 IMR activity 5
IP3	2.01 IAC activities 12 and 14
IP4	2.01 IAC activity 5
IP5	2.01 IAC activity 6
	4.01 DMR activities 9 and 16
IP6	2.01 IAC activities 4, 11 and 12
IP7	4.01 DMR activity 7
IP8	2.01 IAC activity 5

Figure 0.3 Risk Based Inspection Process

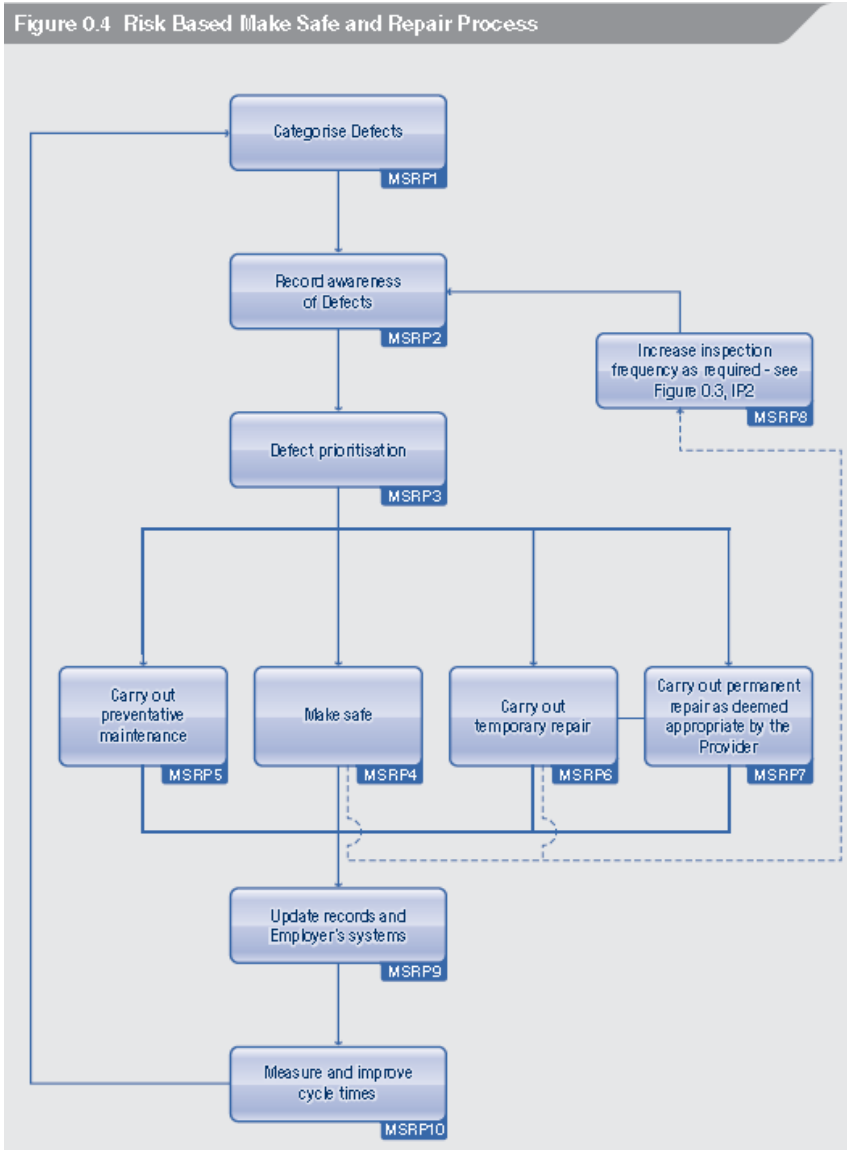


[Part 3] How we have adopted the risk based make safe and repair process in AMOR Part 0 (page 10) as part of our approach

The table below shows how the activities within the AMOR make safe and repair process have been adopted as part of our risk based approach within our process designs for: Inspect Asset Condition (IAC), Identify Maintenance Requirements (IMR), Asset Management (AM) and Develop Maintenance Requirements (DMR). Make Safe and Repair Process (MSRP) Activity links to the activities in AMOR part 0 page 10, shown to the right.

MSRP Activity	Annex 24 Process and Activity Reference
MSRP1	IMR activity 5
MSRP2	IAC activity 5
MSRP3	IAC activity 6
	DMR activity 3 and 4
MSRP4	DMR activities 5, 6 and 7
MSRP5	DMR activities 5, 6 and 7
MSRP6	DMR activities 5, 6 and 7
MSRP7	DMR activities 5, 6 and 7
MSRP8	IAC activities 11 and 12
MSRP9	DMR activity 9
MSRP10	DMR activity 10

Figure 0.4 Risk Based Make Safe and Repair Process



[Part 4] Defect Identification, Assessment and Response

A key function of our safety and detail inspections is the safe and effective identification and categorisation of defects (as defined in AMOR) on the network. We will distinguish defects as either safety defects (those which present an immediate risk to the users of the network or place the Minister for Transport in a breach of one or more of his statutory duties) or non-safety (all other defects).

For each maintenance requirement we have identified the types of defect which may occur, the risk this presents and the appropriate response. We will classify these as either safety or non-safety. For each defect we have established a time scale for our response. A response to a safety defect will have an initial 'make safe' response to mitigate the immediate risk followed by a repair. The make safe action and the repair action could be additional maintenance type work, such as cleaning a gully, or it could involve placing a hazard warning sign or undertaking a repair to the asset.

Defect Response and Repair Timescales	
Safety Defect	
Make Safe	Immediately, or as soon is as reasonably practicable, but no longer than 24 hours after identification
Permanent Repair	28 days
Non-Safety Defect	
Non-Safety (H)	28 days
Non-Safety (M)	6 months
Non-Safety (L)	To be repaired as part of programmed schemes

Where a temporary repair is deemed necessary, our Area Maintenance Managers will monitor the site and agree changes to the inspection frequency as necessary with the Asset Inspection Manager. Where a change to the accepted maintenance frequency is justified, permission to update the frequency and programme will be sought from the Service Manager in accordance with the change control mechanisms in 3.01 Develop Maintenance Requirements Plan. Our Maintenance Sub-processes (2.02 Identify, 3.01 Develop and 4.01 Deliver) have been designed to allow our teams' scope to deliver preventative maintenance in accordance with the programme, whilst retaining sufficient autonomy to react to emerging issues.

For defects which are not described above (non-safety defects), we will distinguish those which need attending to and those which should be monitored and resolved as and when an opportunity presents with two different categories. Where a non-safety medium defect does require action (historically referred to as a Cat 2.1 defect), we will address these within 6 months of identification if they cannot be resolved by planned works (scheme) at that location. A non-safety low defect which is superficial (does not change the characteristic or function of the asset) will be monitored (and if required, re-categorised and repaired as appropriate).

If the defect is not on a Highways England asset, we will report it to the asset owner for rectification within 24 hours of identification. If the defect on a 3rd party asset is a Safety defect, we will treat it as required to keep the network safe and open.

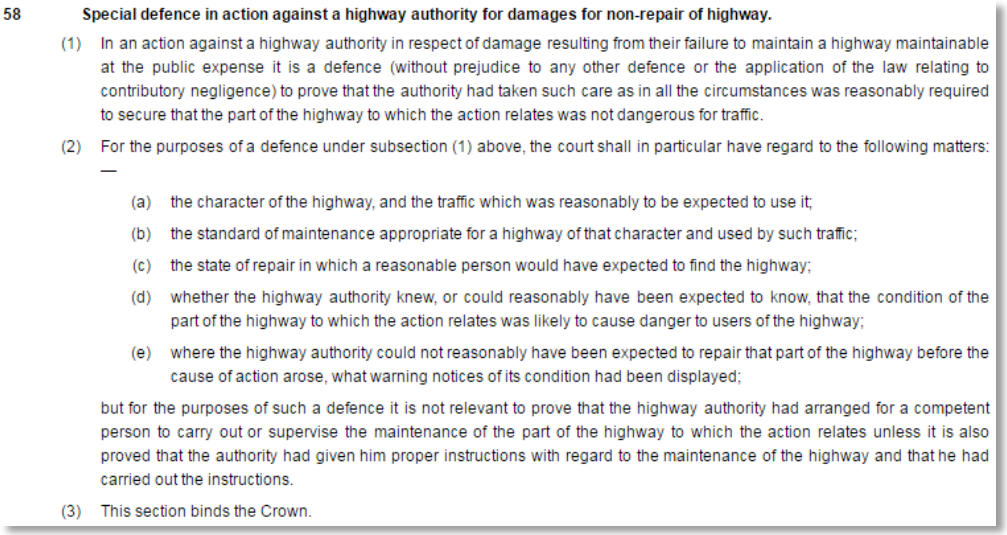
Unless otherwise stated, the defect make safe and repair periods for all safety (Cat 1) and non-safety (Cat 2) defects will be in line with this table. Exceptions are stated in the specific maintenance requirements (Part 5).

For details of defect and condition categories refer to inspection guidance document available on IBMS+

[Part 5] Our area specific risk based approach to assessing Network risks and identifying risk controls: Safety inspections

Our approach to assessing network risks aligns with AMOR by considering Network character together with the primary risks of Network safety and availability. Central to our approach is to ensure Highways England is provided with a 'special defence' under the Highways Act (1980). To achieve this we have based our controls on a safety inspection frequency in line with the Routine and Winter Service Code (RWSC).

We have then assessed the current inspection frequencies used to provide the special defence under the RWSC frequencies against Network character, using the criteria below. The following tables show our methodology and assumptions, a summary of the proposed changes and our quantitative risk assessment. Our quantitative table shows where we propose a change in inspection frequency.



58 Special defence in action against a highway authority for damages for non-repair of highway.

(1) In an action against a highway authority in respect of damage resulting from their failure to maintain a highway maintainable at the public expense it is a defence (without prejudice to any other defence or the application of the law relating to contributory negligence) to prove that the authority had taken such care as in all the circumstances was reasonably required to secure that the part of the highway to which the action relates was not dangerous for traffic.

(2) For the purposes of a defence under subsection (1) above, the court shall in particular have regard to the following matters: —

(a) the character of the highway, and the traffic which was reasonably to be expected to use it;

(b) the standard of maintenance appropriate for a highway of that character and used by such traffic;

(c) the state of repair in which a reasonable person would have expected to find the highway;

(d) whether the highway authority knew, or could reasonably have been expected to know, that the condition of the part of the highway to which the action relates was likely to cause danger to users of the highway;

(e) where the highway authority could not reasonably have been expected to repair that part of the highway before the cause of action arose, what warning notices of its condition had been displayed;

but for the purposes of such a defence it is not relevant to prove that the highway authority had arranged for a competent person to carry out or supervise the maintenance of the part of the highway to which the action relates unless it is also proved that the authority had given him proper instructions with regard to the maintenance of the highway and that he had carried out the instructions.

(3) This section binds the Crown.

Safety Risk Indicator	Risk description	Measure
Network character	In accordance with Section 58 of the Highways Act (1980), we have considered the 'character of the highway, and the traffic which was reasonably to be expected to use it' and intelligence from HA route based strategies to divide the Network into routes.	Type of route and traffic flow
Susceptibility to Barrier Strikes	This reflects the frequency of barrier strikes. By considering the amount of barrier per route, we ensure the indicator is not skewed by longer routes with less barrier or shorter routes with longer lengths of barrier.	Barrier Safety defects per km of barrier.
Susceptibility to Carriageway Failure	This indicator gives an increased weighting to surfacing Safety defects where fewer lanes are available, for example a single carriageway. This is a key measure due to safety, the potential to damage vehicles and their high profile with customers.	Number of surfacing Safety defects (potholes) per lane km
Susceptibility to Flooding	Flooding is frequently associated with injury accidents on the network and indicates vulnerability to severe weather (e.g. heavy rain).	Floods per route km
Susceptibility to Unplanned Closures	This measure considers the number of recorded unplanned closures on the route over a 12 month period.	Duration of unplanned closures \ carriageway km

Routes within ASC (HAPMS Route Names)	MAC Inspection arrangements		Network Character				Risks				ASC Proposed approach post Risk Assessment	
	Route Category	Inspection Frequency	AADT	Class of Route			Barriers(2015)	Potholes	Floods	Unplanned closure	Route Category	Inspection frequency
				M'way	Dual APTR	Single APTR	CAT 1 defects per km of Asset	Potholes per lane length	Floods per km of route	Annual hours closure per km of route		
A1033	B	W	30297		X		0	0.05	1.16	3.75	B	W
A160	B	W	10164		X	X	0.42	0	0.00	0.00	B	W
A162	B	W	10000		X		0.7	0	0.00	0.00	B	W
A180	B	W	27488		X		1.19	0.15	0.4	1.05	B	W
A1M	A	D	58852		X		1.99	0.01	0.53	5.78	A	D
A1	A	D	60209		X		2.4	0.8	0.4	2.67	A	D
A57	B	W	13795			X	0.45	0.2	1.4	0.00	B	W
A58	B	W	-			X	0	0	0	0.00	B	W
A61	C	4W	22899			X	1.85	0	0	0.00	B	W
A616	B	W	17003			X	0.06	0.4	0.7	0.94	B	W
A62	B	W	-			X	0	1.6	0	0.00	B	W
A628	B	W	13632			X	0.18	0.7	0.45	1.95	B	W
A63	B	W	38767		X		1.24	0.5	0.39	1.75	B	W
A631	C	4W	-		X		0	0.3	0	0.00	B	W
A638	C	4W	6960			X	0	0	0	0.00	B	W
A64	C	4W	27780		X	X	0.56	0.2	0.17	0.42	B	W
M1	A	D	96942	X			1.47	0.07	0.16	0.81	A	D
M18	A	D	52415	X			0.94	0.14	0.39	1.62	A	D
M180	A	D	30276	X			0.71	0.5	0.19	4.44	A	D
M181	A	D	16719	X			1.43	0.05	0	0.00	A	D
M606	A	D	59098	X			2.93	0.2	0.24	18.20	A	D
M62	A	D	102808	X			2.25	0.2	0.6	6.50	A	D
M621	A	D	73262	X			4.28	0.1	0.22	3.38	A	D
Data Source	2017						2017			2017	A-one+ Approach	

The following table summarises the rationale behind the changes to the inspection frequency from the RWSC and the previous MRP

Route	Change	Justification
A64	*inspection frequency **increased** from category C to B*	High traffic volumes, the risk to availability of this key holiday route and a relatively high level of incidents
A61	*inspection frequency **increased** from category C to B*	High instances of barrier defects and pothole occurrences and key link from the M1 to the A628
A160	*Inspection frequency **increased** from category C to B*	To maintain consistency with adjacent routes
A162	*Inspection frequency **increased** from category C to B*	To maintain consistency with adjacent routes

Safety inspection is carried out by two highway inspectors in a vehicle travelling at traffic speed and inspects main carriageway and all slip roads
Safety patrol is carried out by one or two personnel in a vehicle travelling at traffic speed and inspects the main carriageway sections only

Inspection Frequencies:

A Daily safety patrol with weekly safety inspection
B Safety inspection every 7 days
C Safety inspection every 28 days

[Part 5] Maintenance Requirement Hold Point (refer to page 3)

[Part 6] Managing the Operational Requirements

In the following sections, for each maintenance requirement (AMOR parts 5-16*) we will:

- Set out the details of the information sources
- Set out the risk characteristics for each maintenance requirement, mapped against Provider Outcomes for each asset group. This assumes no controls are in place (controls will typically be inspections, maintenance and defect repair)
- Set out our risk assessment of the maintenance requirement and any specific controls. (This is in addition to network wide asset risk controls such as Watchman reporting by all members of the wider Area 12 team)
- Establish example defects, defect response and repair times for the maintenance requirement
- A Hold Point with release mechanism for each maintenance requirement to demonstrate Service Manager acceptance of the above for each maintenance requirement.

(* Note: Maintenance Requirements Parts 1-4 have their own plans incorporated in our quality system)

Our risk analysis uses our risk matrix (shown right) which considers the severity of the hazard together with the likelihood of it occurring to determine a resultant risk that could impact on the safety of the road user (S), network availability (A) and reputation (R) (to both A-one+ and Highways England). The calculated risk rating of High (H), Medium (M) or Low (L) is then attributed to either Safety, Availability or Reputation. In most cases there is an impact in more than one area. This risk assessment will be reviewed and updated as required to meet the changing needs of the network and the Employer.

Risk Assessment Matrix		Hazard Severity				
		Negligible	Slight	Moderate	High	Very High
Likelihood of Occurrence	Very Unlikely	Low	Low	Low	Low	Low
	Unlikely	Low	Low	Low	Med	Med
	Possible	Low	Low	Med	Med	High
	Likely	Low	Med	Med	High	High
	Very Likely	Low	Med	High	High	High

Maintenance Requirement – Example Maintenance Requirement Structure

Scope: The system within the Area Network which removes water from trafficked surfaces, sub-layers an
including components from the point at which water drains from paved or other areas to the outfall.

The Scope of the Maintenance Requirement, as defined in AMOR

Sources of information:

Inventory Type	Master Data Source	Condition Information
Gullies & Gully Covers	HADDMS	IAM IS

Sources of Information (Inventory and Condition)

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service
Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic Risk			
Asset Group: Drainage *(AMOR Part 5*)	The management and mitigation of the following risks will ensure the delivery of the following Pro Outcomes[PO]: PO 1. The drainage system is managed and maintained to minimise the risk of Flood Events on trafficked surfaces and remove standing water from trafficked surfaces. PO 2. The drainage system is managed and maintained to remove sub-surface water to enhance the longevity of paved areas and associated earthworks. PO 3. The drainage system is managed and maintained to minimise the risk of pollution to receiving water courses.			
Pipework	Sediment build up prevents water from draining effectively from trafficked surface or sub-surface [PO 1,2]	H	M	M

Details of the asset risk assessment and how they relate to the delivery of the provider outcomes

Route Character and Quantitative Risk Assessment:

Routes within the ASC (HAPMS Route Names)	MAC Inspection Frequency	Network character (m)					Asset risks			
		Concrete	High Friction Surface	Hot Rolled Asphalt	Surface Dressing	Thin Surfacing	Thin surface >10yrs (m)	HRA >20yrs old (m)	Network SCRIM failure (m)	
A1033	Annual									
A160	Annual									

Risk to Safety(S), Availability (A) or Reputation (R)

Route asset risk Normal (N) or Increased (I)

Detail inspection and Maintenance Frequencies:

Asset Type	Detail inspection Frequency	Maintenance Strategy	Frequency
Pipework	10%/year	Jetting to clear sediment causing service defects	
Gullies	100%/year	Preventative Maintenance cleansing	50%
		Hotspot cleansing	100% every quarter

Service Inspection and planned maintenance to manage the identified risks

Based on the route risk assessment, the following exceptions to these frequencies will be adopted:

- Deep cleansing of the interceptors at xxxxxxxxx which have been shown to be full
- Additional gully emptying on the xxxxxxxxx due to a high flooding frequency

Exceptions to those frequencies to manage specific risks

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Flooding 	Attend and identify cause; ensure traffic can pass s Where possible clear cause with hand tools (e.g. cl gully top). Secondary response options include deployment of additional TM and pumps. In extren High Volume Pump may be requested.

Defect definitions & indicative responses.

Example Maintenance Requirement Hold Point (refer to page 3)

6.1 Maintenance Requirement – Drainage

Scope: The system within the Area Network which removes water from trafficked surfaces, sub-layers and other parts of the highway asset, including components from the point at which water drains from paved or other areas to the outfall.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Pipework	HADDMS	HADDMS
Gullies & Gully Covers	HADDMS	IAM IS
Catchpits /	HADDMS	IAM IS
Culverts (Internal Diameter <900mm	HADDMS	HADDMS
Filter drain	HADDMS	IAM IS
Ditches	HADDMS	IAM IS / Envis
Counterfort drains	HADDMS	HADDMS / HAGDMS
Grips	HADDMS	IAM IS
Outfalls	HADDMS	IAM IS
Interceptors	HADDMS	IAM IS
Flow Control Devices	HADDMS	IAM IS
Spill kits	Locally Held	Locally Held
Balancing Ponds	HADDMS	IAM IS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Drainage *(AMOR Part 5)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. The drainage system is managed and maintained to minimise the risk of Flood Events on trafficked surfaces and remove standing water from trafficked surfaces. PO 2. The drainage system is managed and maintained to remove sub-surface water to enhance the longevity of paved areas and associated earthworks. PO 3. The drainage system is managed and maintained to minimise the risk of pollution to receiving water courses.			
Pipework	Sediment build up prevents water from draining effectively from trafficked surface or sub-surface [PO 1,2]	H	M	M
Gullies & Gully covers	Debris and silting prevents gully from operating as designed [PO 1]	H	M	L
	Damaged Steelwork presents danger to road user	L	L	L
Catchpits Culverts	Sediment not effectively retained, leading to reduced performance of other assets in the system [PO 1,2]	L	L	
	Build-up of sediment and detritus, reducing hydraulic performance [PO 1,2]	L	L	L
	Build-up of debris on screens increases potential to cause flooding to 3rd parties.	L		M
	Structural failure, impacting on integrity of trafficked surfaces [PO1]	L	L	L
Filter drain, Ditches, Counterfort drains & Grips Outfalls, Interceptors, Flow Control Devices	Build-up of sediment and detritus, especially vegetation, reducing hydraulic performance of the system[PO 1,2]	M	L	L
	Discharges not as intended due to build-up of silt or vegetation, control mechanisms not serviced effectively, increasing risk of pollution to receiving waters [PO 3]	L		M
Spill kits	Not available where required to mitigate the impact of a spillage on the system [PO 3]	M		M
Balancing Ponds	Build-up of sediment reduces capacity of the pond [PO 1,2,3]	L	L	L
	Water discharged from the pond not controlled, increasing risk of pollution to receiving waters [PO 3]			L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character					Asset risks			Route asset risk	Flood Events/Route Length
	Piped Drainage (m)	Gullies (no)	Ponds (no)	Surface Channels (m)	Outfalls (no)	Recorded Floods (2016)	Priority Assets	Pumping Stations		
A1033	16114	40	0	225	29	5	4	0	N	1.16
A160	2246	295	0	1990	44	0	7	0	N	0
A162	11799	146	0	311	0	0	0	0	N	0
A180	13409	850	3	53036	97	9	106	0	N	0.41
A1M	117068	1860	0	32229	98	13	2	0	N	0.53
A1	2069	913	1	4678	142	5	43	0	N	0.40
A57	642	182	0	0	17	3	2	0	N	1.36
A58	0	45	0	0	0	0	0	0	N	0
A61	0	113	0	0	0	0	0	0	N	0
A616	36957	563	2	14896	82	12	108	0	N	0.71
A62	0	72	0	0	0	0	0	0	N	0
A628	36	748	0	328	30	10	31	0	N	0.45
A63	58087	2583	3	26157	196	11	196	0	N	0.39
A631	0	133	0	0	0	0	0	0	N	0
A638	0	96	0	0	0	0	0	0	N	0
A64	101561	4709	0	72617	148	15	511	0	N	0.17
M1	424294	7598	1	74110	216	10	251	1	N	0.16
M18	111373	3306	2	114369	172	18	234	0	N	0.39
M180	82338	2029	1	87563	154	8	207	0	N	0.18
M181	14460	461	0	3707	304	0	238	0	N	0
M606	7512	402	0	761	0	1	2	0	N	0.24
M62	474137	8779	25	474912	314	59	660	9	N	0.60
M621	111692	1546	1	22939	18	3	5	1	N	0.23
Data Source	HADDMS					HADDMS February 2017				
Drainage hot spots and appropriate actions are recorded in the drainage hotspot register (these are not identified in the Route Asset Risk rating)										

Detail inspection and Maintenance Frequencies:

Asset Type	Service Inspection Frequency	Maintenance Strategy	Frequency
Pipework	10%/year	Jetting to clear sediment causing service defects	As identified
Gullies	100%/year	Preventative Maintenance cleansing	Based on inspection. clean out where >50% silted
		Hotspot cleansing	Varies - in line with the drainage hotspot register
Gully covers	100%/year	Swept In line with the Paved Area Highway requirement	
Catchpits	20%/year (based on previous HE standards)	Targeted cleaning based upon inspection	5% every year
Culverts	100%/year	Clean trash screens	100% every year
Filter drain	100%/year	Targeted treatment with Weed killer and edge back overburden	Based on assessment
Ditches	100%/year	Targeted cleaning based upon inspection	10% every year
Outfalls	100%/year	Clear and service penstocks / flaps	100% every year
Grips	100%/year	Recut	As required
Counterfort drains	As part of the Geotechnical Asset	Treat with Weed killer and edge back overburden	100% every year
Interceptors	100%/6months	Oil Interceptors: Emptied	100% every year
	100%/6months	Other Interceptors: Emptied	20% every year
Balancing Ponds	50%/year	Sites strimmed, fencing and ancillaries serviced	100% every year

Asset Type	Service Inspection Frequency	Maintenance Strategy	Frequency
Flow Control Devices & specialist equipment (e.g. Pumps)	In accordance with specified recommendations where known		
Spill kits	100%/year	Replenished	After Use
All – flood risk		Additional maintenance of flooding hotspots as needed (e.g. Recut grips, clear trash screens)	Varies-In line with the drainage hotspot register

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- Additional maintenance as detailed in the Drainage Hotspot Register held by our flood champion. This identifies proactive and reactive measures to be taken at each hot spot.
- See also table

Route	Location/Description/Details (Marker Posts)	Frequency
A1(M)	Don Viaduct Northbound and Southbound. Nearside and offside gullies (Hotspot ID 1405)	Empty twice annually

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Flooding 	Attend and identify cause; ensure traffic can pass safely. Where possible clear cause with hand tools (e.g. clear gully top). Secondary response options include deployment of additional TM and pumps. In extremis, the High Volume Pump may be requested.

Safety	Blocked Gully 	Attend and clear with hand tools if safe and possible to do so. If required, deploy gully cart.
Non-safety (H)	Partial Blockage - Drainage function working, but compromised 	Clear when identified if possible.
Safety	Fencing to potentially deep water missing (e.g. Pond) 	Use Temporary fencing material (ski fence) or similar until permanent repair effected.

6.1 Maintenance Requirement Hold Point (refer to page 3)

6.2 Maintenance Requirement – Fences, Screens and Environmental Barriers

Scope: All types of fences, screens and environmental barriers within the Area Network, inclusive of walls, stock proofing and wildlife fences.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Boundary Fence	IAM IS	IAM IS
Environmental Fence	IAM IS	Envis
Noise Barrier	IAM IS	Envis
Antiglare Barrier	IAM IS	Envis

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Fences, Screens and Environmental Barriers *(AMOR Part 6)*:	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. Fences, screens and environmental barriers are safe and stable and fulfil their intended safety purpose. PO 2. Fences, screens and environmental barriers are managed to identify Defects that would adversely impact upon their intended functional purpose.			
Boundary Fence	Asset not stock proof [PO 1]	M	L	L
Environmental Fence	Asset does not perform to its intended specification (e.g. deer fencing not preventing deer from accessing the network) [PO 1,2]	L	L	L
Noise Barrier	Sound insulation performance does not meet the level specified in BS EN1793-2 [PO 2]			L
Antiglare Barrier	Safety of traffic on adjacent network impacted by glare from traffic on area network	M		M

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (m)				Asset risks		Route asset risk
	Boundary Fence	Environmental Fence	Noise Fence	Antiglare fence	Boundary Fence Safety Defects	Animals on network	
A1033	0	0	0	0	0	0	N
A160	0	0	0	0	0	0	N
A162	0	0	0	0	0	0	N
A180	56	0	0	0	1	0	N
A1M	48195	0	2007	0	3	0	N
A1	2573	0	0	0	1	0	N
A57	245	0	0	0	0	0	N
A58	126	0	0	0	0	0	N
A61	0	0	0	0	0	0	N
A616	0	0	0	0	1	0	N
A62	135	0	0	0	0	0	N
A628	7672	0	0	0	1	0	N
A63	3173	0	94	1818	2	0	N
A631	0	0	20	0	0	0	N
A638	0	0	0	0	0	0	N
A64	2786	0	683	110	0	0	N
M1	120820	0	7308	80	31	0	N
M18	94687	0	758	104	24	0	N
M180	81760	0	0	0	25	0	N
M181	3608	0	0	0	0	0	N
M606	3933	0	238	0	5	0	N
M62	220450	0	2692	75	64	1	N
M621	24645	0	952	0	7	0	N
Data Source					2016/17 ASC Safety Defects		

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Boundary Fence	100%/6 months	Find and fix during inspections	As identified
Environmental Fence	100%/year	Proactive Find and fix carried out concurrently with inspections.	
Noise Barrier	100%/year	Proactive Find and fix carried out concurrently with inspections.	
Antiglare Barrier	100%/year	Proactive Find and fix carried out concurrently with inspections.	

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- No exceptions required for this maintenance requirement

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Motorway Boundary Fence not stock-proof	Where possible repair/make safe the defect at the time of inspection or deploy works team with replacement rail
Safety	Motorway Boundary Fence broken 	Make safe with netting at time of inspection. Repair within 28 days
Non-safety (L)	Boundary fence missing rails or nails	Where possible repair/make safe the defect at the time of inspection or deploy works team to repair

6.2 Maintenance Requirement Hold Point (refer to page 3)

6.3 Maintenance Requirement – Geotechnical Assets

Scope: Geotechnical assets within the Area Network, comprising: embankment and cuttings on which the pavement and other assets are founded, and noise/landscape bunds.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Embankments	HAGDMS	HAGDMS
Cuttings	HAGDMS	HAGDMS
Rock slopes	HAGDMS	HAGDMS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Geotechnical Assets *(AMOR Part 7)*:	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. Potential Defects with geotechnical assets are identified. PO 2. Defects are managed to minimise risks to road users. PO 3. Defects are managed to minimise risk of damage to other assets.			
Embankments	Asset destabilises and negatively impacts on lane availability [PO 1,2,3]		M	L
Cuttings	Asset destabilises and negatively impacts on the structural integrity of the network [PO 1,2,3]		L	L
Rock slopes	Debris falling on to trafficked surface [PO 1,2,3]	H	L	M

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (m)				Asset risks			Route asset risk
	At Grade	Embankment	Cutting	Bunds	Total Length of Defective earthworks (m)	Monitoring	Special Inspections	
A1033	7113	718	0	855	247	None	None	N
A160	7737	544	0	0	43	None	None	N
A162	2271	1231	1077	0	56	4km at 3 yearly frequency	None	I
A180	9070	8387	4928	1887	150	None	None	N
A1M	3252	9919	14611	297	4043	None	None	N
A1	9228	29810	5391	27	1584	None	None	N
A57	3650	123	0	0	0	None	None	N
A58	552	0	322	0	0	None	None	N
A61	473	34	0	0	0	None	None	N
A616	14365	14796	7675	121	543	None	None	N
A62	0	563	0	0	0	None	None	N
A628	15794	2517	194	0	4458	3 km at 3 yearly frequency 8.9 km at 2 yearly frequency	0.1 km on monthly inspections	I
A63	21555	10419	2953	1672	2046	None	None	N
A631	n/a	61	0	n/a	0	None	None	N
A638	0	705	778	0	0	None	None	N
A64	116814	48364	17250	471	827	6 km at 3 yearly frequency 0.5 km annually	None	I
M1	6824	82762	50706	197	4744	None	None	N
M18	19243	60275	35295	207	9242	None	None	N
M180	27224	10103	13417	0	2239	4 km at 3 yearly frequency	0.3 km on monthly inspections	I
M181	791	997	0	0	0	None	None	N
M606	1654	4861	3665	0	1161	None	None	N
M62	57194	105510	66159	1131	9659	None	None	N
M621	4979	11251	13359	451	2471	None	None	N
Data Source	HAGDMS							

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Geotechnical Features	Risk Based, in line with HD41 and approved Geotechnical Asset Management Plan. Remote monitoring installed at High Risk locations	Maintained in line with Environmental & Landscape management plans.	

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- Monitoring in line with Route Character and Risk Assessment:

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Significant Landslip	Protect traffic through closing affected lanes. Resolve in accordance with HD41
Safety	Rockfall in Carriageway	Clear debris, utilise Rolling Road Block / Closures as necessary. Identify cause and ensure no further rockfall likely. Resolve in accordance with HD41
Non-safety (H)	Tension Cracking	Categorise and investigate in accordance with HD41

6.3 Maintenance Requirement Hold Point (refer to page 3)

6.4 Maintenance Requirement – Lighting

Scope: Lighting equipment within the Area Network, specifically:

- Luminaires, including their internal control electronics & electrics (including the photocell if fitted) and lamp & reflector.
- Belisha beacons and vertical wig wag signs at school or animal crossings.
- Lighting columns, including attached accessories, base or, if on a structure, mounting bracket.
- Road traffic sign lighting, including lamp, luminaire, photocell, cables, ducting.
- Other access lighting such as pedestrian walkways, cycle ways and subway lighting.
- The electrical and optical elements of tall mast lighting systems (20m or more in height) and catenary lighting systems.
- Associated electrical supplies, including ducting, chambers, cables and feeder pillars and all switch gear, control equipment (including the photocell if fitted), monitoring equipment and heaters therein.
- Alternate energy sources such as solar panels or wind turbines etc. used for the purpose of road lighting or sign lighting.
- Any energy saving equipment, i.e. midnight switch off equipment and/or dimming equipment.
- Any power distribution cables downstream of the Distribution Network Operator (DNO) connection point.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Feeder Pillar	IAM IS	Condition recorded on the EPS Inventory
Lighting point	IAM IS	Condition recorded on the EPS Inventory
Cables & Ducts	Locally Held	Locally Held

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Lighting *(AMOR Part 8)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. Lighting does not present a hazard to the road user, road worker or third parties. PO 2. Road lighting continues to fulfil its intended purpose as an accident reduction intervention. PO 3. Other lighting continues to fulfil its intended purpose; road traffic signs, lighting to highlight the location of a road traffic sign, gantry lighting to highlight the presence of the sign and to help read the sign, and other lighting (subway and access) to provide route guidance and hazard identification.			
Feeder Pillar	Electric shocks to roadworkers from unmaintained feeder pillars without modern disconnection devices. [PO 1]	H		L
Lighting point	Lighting presents a hazard (e.g. column deterioration, electrically unsafe) [PO 1]	M		L
	Asset does not fulfil its safety or intended purpose (e.g. Lamp not on) [PO 2,3]	L		L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (no)					Asset risks		Route asset risk
	Feeder Pillars	Street Lighting	Lit Signs	Other Lighting	High Mast Lighting	Feeder Pillar Defects	Defect History (Lamp Scouts)	
A1033	11	354	119	0	0	0	10	N
A160	11	192	81	0	0	0	3	N
A162	7	53	32	0	0	5	1	N
A180	9	283	44	0	0	3	6	N
A1M	7	53	9	0	0	0	2	N
A1	8	325	52	0	0	6	10	N
A57	13	116	67	0	0	0	3	N
A58	5	39	21	0	0	0	0	N
A61	6	91	83	0	0	0	2	N
A616	32	251	82	0	0	0	6	N
A62	3	71	37	0	0	0	2	N
A628	14	116	42	0	0	0	2	N
A63	38	1123	180	0	0	6	150	N
A631	16	216	34	0	0	1	15	N
A638	6	104	42	0	0	0	1	N
A64	36	340	226	0	0	2	4	N
M1	36	351	136	0	0	0	4	N
M18	9	51	46	0	0	0	2	N
M180	10	259	48	0	0	4	4	N
M181	1	25	6	0	0	0	0	N
M606	4	312	44	0	0	4	3	N
M62	109	2707	242	0	16	4	520	N
M621	24	569	142	0	65	4	12	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Lighting Point	In line with AMOR requirements and approved Lighting Asset Management Plan (LAMP)		
Feeder Pillar			
Cables and Ducts			

Note: The LAMP will also cover details of the Electrical Asset Safety testing required every six years.

Based on the route risk assessment, the following exceptions to these frequencies will be adopted;

- Exceptions will be managed as per the LAMP

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Loss of electrical integrity of any component	Make safe by isolating the electrical item.
Safety	Door missing from feeder pillar showing exposed wires 	Deploy electrical team to isolate and make safe. Provide temporary cover until a permanent replacement is arranged

Safety	Collision damage to any electrical asset (lighting column, lit sign, feeder pillar etc)	Make safe and arrange for permanent repair
Non-safety (H)	Cable on surface 	Identify owner and arrange for cable to be removed
Non-safety (H)	Maintenance access overgrown 	Clear access

Note – A number of electrical defects relating to outages and associated inspections are defined in AMOR

6.4 Maintenance Requirement Hold Point (refer to page 3)

6.5 Maintenance Requirement – Paved Areas

Scope: Paved areas, comprising: trafficked areas, hard shoulders, footways, cycle tracks, bridle ways, paved pedestrian areas, hard-standing paved areas, paved central reserves, traffic islands and cross-overs, covers, gratings, frames, boxes, kerbs, edgings and preformed channels which fall within the Area Network.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Carriageway Construction Database, paved pedestrian areas, hard-standing paved areas, paved central reserves, cross-overs	HAPMS	National Machine Surveys in HAPMS, Visual Inspections in IAM IS
Footways	IAM IS	IAM IS
Cycle Tracks	IAM IS	IAM IS
Bridleways	IAM IS	IAM IS
Traffic Islands	IAM IS	IAM IS
Covers, gratings, frames, boxes	HADDMS	IAM IS
Kerbs and edgings	IAM IS	IAM IS
Preformed channels	HADDMS	IAM IS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Paved Areas *(AMOR Part 9)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. The paved area provides a safe and even surface for all road users.			
Highway, inc hard shoulder	Deterioration of the surface course material [PO 1]	H	M	H
Cross overs	Crossover gates do not operate when needed due to lack of maintenance		L	L
Central Island	Surface deterioration does not provide a safe & even road surface for NMUs [PO 1]	M		M
Kerb, Edgings	Uneven kerbs and edgings present a trip hazard to NMUs [PO 1]	M		M
	Missing / incomplete kerbs and edgings reduce effectiveness of drainage system	L		
Preformed channels	Accumulation of debris reduces effectiveness of drainage system causing flooding of carriageway or additional build-up of silt downstream (eg in a pipe)	H	M	M
Hard standings	Surface deterioration does not provide a safe and even road surface [PO 1]	L		
Covers, grating, frames and boxes, manholes	Frames and covers protrude from the road surface, damaging vehicles.	L		L
	Broken ironwork collapses, causing accident risk and further carriageway damage.	M	L	L
Footways, cycleways, pedestrian crossing	Surface deterioration does not provide a safe and even surface for non-motorised users on the network [PO 1]	M		M
Nosings, ghost islands, Other paved areas	Surface deterioration does not provide a safe and even road surface [PO 1]	L	L	L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (m)					Asset risks				Route Asset Risk
	Concrete	High Friction Surface	Hot Rolled Asphalt	Surface Dressing	Thin Surfacing	Thin surface >10yrs (m)	HRA >20yrs old (m)	Network SCRIM below IL (m)	Rutting >15mm 100m av	
A1033	0	4476	0	0	42526	14804	0	4989	0	N
A160	0	3402	51995	0	32790	15484	51767	1733	0	N
A162	0	1336	33112	0	5564	4864	28512	448	0	N
A180	16154	4343	30390	0	124234	68722	19770	3111	0	N
A1M	0	3378	51450	0	148574	24063	514502	10362	100	N
A1	0	6288	178498	400	8006	68020	176084	9891	0	N
A57	0	698	14522	0	12984	0	10946	2625	0	N
A58	0	876	5748	0	3232	0	5748	150	0	N
A61	0	2770	8596	0	11140	1692	8596	1060	0	N
A616	0	2328	14110	0	96994	69648	14110	8376	0	N
A62	0	2932	0	0	9922	9922	0	281	0	N
A628	0	18557	42272	0	90575	27460	31470	12494	0	N
A63	0	6540	197211	18848	236868	88538	193680	8717	0	N
A631	0	728	22164	0	11828	0	22164	490	0	N
A638	0	658	5747	664	4716	0	5507	757	0	N
A64	0	24119	647314	8521	340243	60597	621911	58444	0	N
M1	0	15267	1772182	0	475306	184247	176409	25035	271	N
M18	0	5436	811622	1100	310740	119033	801374	21214	0	N
M180	144284	1966	711365	24300	280810	129314	710883	25775	0	N
M181	0	2728	103594	74	12174	0	103594	5212	0	N
M606	0	3250	19404	0	61056	38212	19404	237	0	N
M62	44226	12248	2236877	0	985987	275950	2077043	40216	0	N
M621	0	9602	205440	2248	94226	33692	72878	11458	0	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Highway, inc hard shoulder	100%/year	*For all paved areas:* Planned Preventative Sweeping and Cleaning of the entire network: Nearside Centre NMU Routes Hot material repairs to defective areas of pavement as needed across the network Repairs to Ironwork / Chambers NMU Access (e.g. Footways and Cycleways) maintained to the same standard as trafficked surfaces. Soft estate encroachment managed through Soft Estate Maintenance Requirement.	 100%/6 Months 100% every year 100%/6 Months Estimated 5 shifts / month As Required
Cross overs	100%/year		
Central Island	100%/year		
Kerb, Edgings	100%/year		
Preformed channels	100%/year		
Hard standings	100%/year		
Covers, grating, frames and boxes, manholes	100%/year		
Footways, cycleways, pedestrian crossing	100%/6 months		
Nosings, ghost islands, Other paved areas	100%/year		

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

Route	Location/Description/Details (Marker Posts)	Frequency (Additional sweeps per annum)
M62	J24 – J28 Central reserve 'V' channel where present	
WB	111/2 to 108/7 - 104/4 to 103/0 - 99/6 to 98/9 - 96/9 to 96/3	2
EB	97/6 to 98/9 - 101/6 to 103/1 - 108/1 to 108/3 -111/0 to 111/5	2
M62	J29 – J30 Central reserve 'V' channel where present	
WB	118/1 to 116/6	2
M621	J1 – J4 Central reserve 'V' channel where present	
C/W	5/4 to 5/6 - 6/4 to 7/1 - 7/8 to 8/1	2
A/C	7/3 to 7/1 - 6/2 to 6/1	2
M18	J3 – J5 Central reserve 'V' channel where present	
NB	267/2 to 267/6 - 276/6 to 278/6	2
SB	271/2 to 268/8	2
M1	J31 – J35a Central reserve 'V' channel where present	
SB	268/2 to 267/6 - 266/4 to 265/8 - 265/7 to 265/5 - 262/5 to 261/8 256/2 to 256/1 - 255/9 to 255/8 - 254/7 to 254/3 - 250/2 to 249/1	2
NB	248/2 to 249/3 - 256/5 to 257/8 - 258/8 to 259/4 - 261/5 to 261/9 263/3 to 263/4 - 263/7 to 265/0 - 265/3 to 265/4 - 268/4 to 268/6	2
M1	J39 – J42 Central reserve 'V' channel where present	
NB	292/3 to 292/7 - 293/6 to 293/7 - 295/1 to 298/0	2
SB	295/5 to 298/0 - 292/3 to 291/7 - 290/9 to 290/1	2

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Potholes >20mm	Assess defect and establish warning signs or undertaking temporary or permanent repair
Non-safety (L)	Cracking/crazing discreet area	Repair as part of scheme

6.5 Maintenance Requirement Hold Point (refer to page 3)

6.6 Maintenance Requirement – Road Markings and Road Studs

Scope: Road markings and road studs in all materials within the Area Network.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Longitudinal markings	IAM IS	IAM IS
Hatched road markings	IAM IS	IAM IS
Transverse road markings	IAM IS	IAM IS
Safety critical road markings	IAM IS	IAM IS
Other road markings	IAM IS	IAM IS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Road Marking and Road Studs *(AMOR Part 10)*:	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. Road markings and road studs are safe and visible			
Longitudinal markings	Road markings not safe and visible, resulting in increased incidents [PO 1]	M		M
Hatched road markings	Road markings not safe and visible, resulting in increased incidents [PO 1]	L		L
Transverse road markings	Road markings not safe and visible, resulting in increased incidents [PO 1]	L		L
Safety critical road markings	Road markings not safe and visible, resulting in increased incidents [PO 1]	H		M
	Road markings not legally enforceable (e.g. double white line systems missing road studs) [PO 1]	L		M
	Road studs missing making white line systems not legally enforceable [PO 1]	L		M
Other road markings	Road markings not safe and visible, resulting in increased incidents [PO 1]	L		L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character					Asset risks	Route asset risk
	Longitudinal Markings (m)	T&S Road Markings (no)	Hatched RM (m)	Give Way Lines (no)	Double White Lines (m)	Cat 1 Defects (2016/17)	
A1033	20450	265	638	78	706	0	N
A160	20796	81	1361	6	26	0	N
A162	13057	43	379	0	146	0	N
A180	143602	34	3902	14	15	0	N
A1M	167696	69	4370	2	20	0	N
A1	85077	54	1971	15	569	0	N
A57	3427	70	1285	15	1822	0	N
A58	1718	239	26	0	18	0	N
A61	5343	101	479	5	654	0	N
A616	53039	114	10923	23	3170	0	N
A62	2606	191	160	0	0	0	N
A628	48285	172	1542	1	12445	0	I
A63	162168	487	6979	45	940	0	N
A631	8672	137	163	0	0	0	N
A638	2612	16	978	9	19	0	N
A64	415746	1300	32553	274	9010	0	N
M1	710500	475	13110	7	5025	0	N
M18	399648	198	9474	4	0	0	N
M180	329879	110	4252	12	0	0	N
M181	26760	5	1016	2	0	0	N
M606	42937	107	2536	2	0	0	N
M62	1101053	1059	36654	17	2044	0	N
M621	128183	175	6957	5	397	0	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Longitudinal markings	100%/year	Renew (Prioritising Safety Critical Road Markings)	In accordance with AMOR part 10. Additionally 20% every year in accordance with Annex N.
Hatched road markings	100%/year		
Transverse road markings	100%/year		
Safety critical road markings	100%/year		
Other road markings	100%/year		

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- The double white line systems on the A628 will be closely monitored during the weekly safety inspections due to high wear rates and subject to renewal during planned closures of the route.
- All the double white line systems and stop lines on the Area 12 are classified as safety critical.

Indicative Defect Definitions and Responses: Road Markings

Defect Category	Defect Description	Indicative Response Action
Safety (Critical)	Faded or missing Stop Lines	Erect temporary warning signs within 24 hours. Renew road markings within 28 days
Safety (Critical)	Missing or broken white lines as part of a double white line system or a score of 10 or less when assessed in accordance with TD26/17	Erect temporary warning signs within 24 hours. Renew road markings within 28 days.
Non-safety (H) (Non-critical)	More than 30% wear to non-regulatory lines in non-critical areas or a score of <20 when assessed in line with TD26/17	Repair within 6 months unless the defect falls within the limits of a scheme whose delivery date is within 6 months of the due date of the repair
Non-safety (M) (Non-critical)	Short lengths with <70% mark remaining when assessed within a 100 metre section	Add the defect to the schedule of sites which will be subject to a reflectivity test

Non-safety (L) (Non-critical)	Single marking missing or faded	Monitor during inspections to ensure the missing markings do not become a safety concern

For white lining the functional life of the marking must be determined and recorded in IAM IS. Where a functional life has not been recorded the white lining will be the subject of a visual assessment. Any areas of lining with less than the required visibility distance or a visual assessment score of less than 40 (when assessed in line with the requirements of TD26/17 Annex C) shall be the subject of a reflectivity test.

Indicative Defect Definitions and Responses: Road Studs

Defect Category	Defect Description	Indicative Response Action
Safety (critical defect)	Missing studs as part of a double white line system. Cavity left by missing roadstud	Erect temporary warning signs or replace within 24 hours. Replace missing studs within 28 days.
Non-safety (H) (Non-critical defect)	More than one in any ten consecutive roadstuds are missing or defective or >31% missing or non-reflecting roadstuds (determined from night time inspection) in the relevant section	Repair within 6 months unless the defect falls within the limits of a scheme whose delivery date is within 6 months of the due date of the repair
Non-safety (M) (Non-critical)	More than one in any twenty consecutive roadstuds are missing or defective or 21-30% missing or non-reflecting roadstuds (determined from night time inspection) in the relevant section	Ensure the defects form part of a renewal scheme-Monitor areas during safety inspections to ensure stud loss does not become a safety concern. Update scheme delivery date if appropriate (This is not a defect under TD26/17)
Non-safety (L) (Non-critical)	More than one in any thirty consecutive roadstuds are missing or defective or 11-20% missing or non-reflecting roadstuds (determined from night time inspection) in the relevant section	Monitor during inspections to ensure the missing studs do not become a safety concern (This is not a defect under TD26/17)

- All road studs associated with double white line systems and prohibitory hatchings are safety critical.
- The road studs on the A64 single carriageway between Whitwell by pass and Malton by pass and the active road studs East of Tadcaster Bar are safety critical.

6.6 Maintenance Requirement Hold Point (refer to page 3)

6.7 Maintenance Requirement – Road Restraint Systems

Scope: All vehicle restraint systems and pedestrian restraint systems within the Area Network, including: vehicle safety barriers, crash cushions, terminals, transitions, pedestrian guard rails, vehicle parapets and pedestrian parapets on bridges and other structures.

Sources of information:

Inventory Type	Master Data Source	Condition Information
Vehicle restraint system	IAM IS	IAM IS
End terminals, Crash cushions	IAM IS	IAM IS
Structure parapets	SMIS	SMIS
Emergency crossing points	IAM IS	IAM IS
Pedestrian Guard rail	IAM IS	IAM IS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Road restraint systems *(AMOR Part 11)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. Road restraint systems are managed and maintained to function in accordance with their intended design and performance requirements.			
Vehicle restraint system	Vehicles not contained as intended [PO 1]	H	H	H
End terminals, Crash cushions	Terminals and crash cushions do not provide appropriate protection [PO 1]	M		M
Structure parapets	Vehicles not contained as intended [PO 1]	H	H	H
Emergency crossing points	Do not function when required to be operated [PO 1]		L	L
Pedestrian Guard rail	NMUs not afforded appropriate protection from traffic [PO 1]	M		L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (m)			Asset risks		Route asset risk
	Concrete Barrier	Tensioned Systems	Un-tensioned Systems	Safety Defects	Number Non safety Defects (2015/16)	
A1033	0	0	7736	14	0	N
A160	123	3835	761	12	1	N
A162	0	2787	768	4	8	N
A180	0	36048	6302	162	10	N
A1M	750	26085	25544	276	97	N
A1	0	22077	7112	195	1	N
A57	0	0	203	3	0	N
A58	0	0	847	0	0	N
A61	0	310	1275	17	0	N
A616	0	6857	3200	13	2	N
A62	0	0	151	1	0	N
A628	0	379	3824	23	10	N
A63	0	37231	19998	236	34	N
A631	0	0	3717	17	5	N
A638	0	395	199	1	0	N
A64	117	54104	20716	375	51	N
M1	42734	92023	58373	869	40	N
M18	30003	54656	39376	404	46	N
M180	20318	45529	21708	225	51	N
M181	286	8894	4517	46	6	N
M606	0	7587	8855	87	6	N
M62	43042	151062	147509	1372	117	N
M621	5031	7756	31149	290	22	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Vehicle restraint system (Concrete Systems)	100%/year	No Maintenance Required	
Vehicle restraint system (Tensioned)	Typically 2 yearly for BS-EN1317 systems. 2 yearly BS 7669-3 systems	Maintain barrier tension in accordance with manufacturer's recommendations. For non-proprietary systems maintain tension in accordance with BS7669-3	In conjunction with inspection
Vehicle restraint system (Other Systems)	Typically 2 yearly for BS-EN1317 systems. 2 yearly BS 7669-3 systems	Maintain system in accordance with manufacturer's recommendation. For non-proprietary systems maintain in accordance with BS 7669-3	In conjunction with inspection
End terminals, Crash cushions	100%/year	Serviced in accordance with manufacturers specifications	100%/year
Structure parapets	100%/year	Serviced in accordance with manufacturers specifications	100%/year
Emergency crossing points	100%/year	Serviced in accordance with manufacturers specifications	100%/year
Pedestrian Guard rail	100%/year	Serviced in accordance with manufacturers specifications	100%/year

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- None identified – The high risks arise from incidents on the network and this risk is managed through our inspection regime therefore no route specific exceptions are required

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Impact Damage or corrosion that impacts on the integrity of the system	Deploy resource and assess in accordance with AMOR Appendix 11 Road Restraint Systems Maintenance Requirements. Repair as defined
Non-safety (H)	Corrosion of elements where the integrity of the system is not compromised	Ensure VRS is in the forward programme for renewal
Non-safety (L)	Minor loss of galvanising	To be repaired as part of future renewal scheme

6.7 Maintenance Requirement Hold Point (refer to page 3)

6.8 Maintenance Requirement – Road Traffic Signs

Scope: Traffic signs within the Area Network, including all posts, supports and fastenings; all bollards; mechanical variable message signs, together with associated electrical equipment where appropriate.

Sources of information about condition data, including the identification of asset data gaps and a mitigation approach:

Inventory Type	Master Data Source	Condition Information
Signs (Posts, plates and fixtures)	IAM IS	IAM IS
Safety Bollards	IAM IS	IAM IS
Signal posts	IAM IS	IAM IS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Road Traffic Signs *(AMOR Part 12)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. Road traffic signs are safe and clearly legible PO 2. Road traffic signs give effect to regulatory position			
Signs	Signs not legible due to fading or obscured by vegetation [PO 1]	M		M
	Signs are not safe, for example, rusted sign posts [PO 1]	L		
	Signs are not enforceable due to fading or obscured by vegetation [PO 2]	H		M
Safety Bollards	Bollards are missing or unsafe (e.g. wiring exposed) [PO 1]	L		L
Signal posts	Posts do not facilitate visibility / function of signals	M		L

Route Character and Route Asset Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (No)					Asset risks		Route asset risk
	Unlit Signs	Lit Signs	Gantry Signs	Bollards	Signal Posts	Retro data not available	Cat 1 Defects (2015)	
A1033	402	131	0	42	71	Night time inspections undertaken	2	N
A160	115	33	0	71	19	Night time inspections undertaken	0	N
A162	18	13	0	2	0	Night time inspections undertaken	0	N
A180	507	49	0	175	0	Night time inspections undertaken	10	N
A1M	172	58	6	0	7	Night time inspections undertaken	4	N
A1	337	130	4	133	0	Night time inspections undertaken	8	N
A57	94	32	0	30	15	Night time inspections undertaken	3	N
A58	30	17	8	21	25	Night time inspections undertaken	0	N
A61	50	36	0	19	17	Night time inspections undertaken	0	N
A616	494	112	1	237	0	Night time inspections undertaken	7	N
A62	40	9	0	14	62	Night time inspections undertaken	1	N
A628	296	59	0	262	20	Night time inspections undertaken	1	N
A63	914	274	0	240	110	Night time inspections undertaken	19	N
A631	30	34	0	0	39	Night time inspections undertaken	4	N
A638	39	41	0	1	0	Night time inspections undertaken	1	N
A64	2430	212	12	462	73	Night time inspections undertaken	13	N
M1	1000	365	100	15	48	Night time inspections undertaken	23	N
M18	580	168	76	61	24	Night time inspections undertaken	6	N
M180	380	84	12	44	4	Night time inspections undertaken	0	N
M181	75	13	0	0	0	Night time inspections undertaken	1	N
M606	102	68	0	3	8	Night time inspections undertaken	1	N
M62	1177	905	522	274	44	Night time inspections undertaken	19	N
M621	284	233	37	10	9	Night time inspections undertaken	5	N

Detailed Inspection and Maintenance Frequencies:

Asset Type	Detailed Inspection Frequency	Maintenance Strategy	Frequency
Signs	2 yearly	Assess 100% each year. Sign face cleaning in accordance with Part 2 TD 25/15 (Visibility covered in Soft Estate Requirement)	As required based on assessment
Safety Bollards	2 yearly	Assess 100% each year. Sign face cleaning in accordance with Part 2 TD 25/15 (Visibility covered in Soft Estate Requirement)	As required based on assessment
Signal Poles	2 yearly	Access checked and cleared	100%/year

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- None identified

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Faded / Obscured or missing regulatory sign	Erect temporary warning signs. Clean, remove obstruction or replace sign.
Non-safety (L)	Minor damage or wear not affecting performance	Monitor condition during through inspection regime

6.8 Maintenance Requirement Hold Point (refer to page 3)

6.9 Maintenance Requirement – Soft Estate

Scope: The semi-natural, improved / semi-improved and landscaped parts within the Area Network, including biodiversity, cultural heritage assets and hard landscaping areas.

Sources of information

Inventory Type	Master Data Source	Condition Information
Soft Estate	Envis	Envis
Verges	Envis	Envis
Trees	Envis	Envis
Hedges	Envis	Envis
Environmental structures	Envis	Envis
Other environmental assets	Envis	Envis

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Soft Estate *(AMOR Part 13)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. Soft estate condition is managed and maintained to minimise risks to road users, road workers and adjacent affected parties PO 2. Soft estate is managed and maintained to protect and maintain protected designated and Protected Habitats / Species, improved / semi-improved / landscaped parts. PO 3. Soft estate is managed and maintained to meet existing commitments to Public Inquiries, Planning Consents, their parties, protection of Designated Sites (International, National) or Protected Habitats / Species.			
Soft Estate	Soft estate is poorly maintained and presents a poor image to the customer of Highways England [PO 1]			H
	Soft estate is poorly maintained and obscures risks to roadworker [PO 1]	M		L
	Soft estate is not managed to meet legislative requirements (e.g. protection of species and designated sites [PO 2,3]			M
Verges	Sightlines to signs and junctions are obscured [PO 1]	H		M

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
	Established trees not maintained, obscuring infrastructure [PO 1]			L
Trees	Self-seeded trees establishing themselves in locations close to the carriageway [PO 1]	M		
Hedges	Sensitive habitats not maintained with due concern for protected habitats or species [PO 2,3]			M
Environmental structures	Structures in place to keep wildlife off the carriageway are not maintained (e.g. associated fencing not stock proof) [PO 1,2,3]	M	L	L
Other environmental assets	Specialist wildlife assets such as bat & bird boxes and wild flower meadows not maintained to meet their intended function (e.g. bat boxes cleaned annually). This could result in loss of protected habitats or species from the area network [PO2]			L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character				Asset risks				Route asset risk
	Verge Area m^2	Trees no	Hedges Lin m	Environmental Structures	SSSI/AONB	Invasive Species Risk	Protected Species	Cultural Heritage	
A1033	50919	5	0	0	SPA, SAC, SSSI	L	L	0	N
A160	69925	1	6	0	SPA, SAC, SSSI	L	L	0	N
A162	14035	5	0	0	NONE	L	L	1	N
A180	509622	17	984	0	SPA, SAC, SSSI	L	M	0	N
A1M	146462	21	25142	0	NONE	L	L	14	N
A1	245987	25	20	0	NONE	L	L	0	N
A57	14401	2	0	0	NONE	L	L	4	N
A58	30562	1	0	0	NONE	L	L	5	N
A61	52271	0	0	0	NONE	L	L	0	N
A616	126727	8	0	0	SPA, SAC, SSSI	L	L	0	N
A62	45209	5	0	0	NONE	L	L	0	N
A628	59119	5	0	0	SPA, SAC, SSSI	L	L	10	N
A63	418620	40	239	0	SPA, SAC, SSSI	L	L	1	N
A631	995	0	0	0	NONE	L	L	0	N
A638	10234	0	0	0	NONE	L	L	0	N
A64	946690	199	27922	3	SAC, SSSI, AONB	M	L	58	N
M1	452557	35	1790	8	SAC, SSSI	L	L	7	N
M18	485081	32	794	0	SPA, SAC, SSSI	L	L	5	N
M180	1002600	41	0	4	SPA, SAC, SSSI	L	L	8	N
M181	102119	1	0	0	NONE	L	L	0	N
M606	51062	6	1174	0	NONE	L	L	2	N
M62	1566767	77	2481	3	SPA, SAC, SSSI	M	M	12	N
M621	120751	22	365	0	NONE	M	L	5	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Soft Estate Verges Trees Hedges Environmental structures Other environmental assets	Inspected in accordance with Environmental Management Plan / Landscape Management Plan	Maintained in accordance with EMP/ LMP and AMOR, including • Nearside verges twice annual swathe cut. 2m wide strip from edge of carriageway including visibility splays to signs • Offside verges once annual swathe cut with once annual spray with Grass Growth Retarder (GGR) and selective herbicide. 2m wide strip from edge of carriageway including visibility splays to signs • Quarterly maintenance of access to communications equipment • Emptying litter bins on the network when required • Collaborative litter picking on the APTR network with the responsible authority • Cutting back trees to ensure visibility of signs is maintained • Preventative maintenance, removing self-seeded saplings before they become established.	

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- Exceptions and constraints are detailed in EMP and LMP

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Dangerous Tree or Limb 	Install traffic management if required, arrange for tree to be felled/limb removed
Safety	Grass/vegetation obscuring visibility 	Cut back

Non-safety (H)	Injurious Weeds 	Assess area, remove/spray weeds with appropriate herbicide
Non-safety (L)	Vegetation hanging over footway 	Ensure area is programmed for cyclic grass cutting. Monitor during inspections

6.9 Maintenance Requirement Hold Point (refer to page 3)

6.10 Maintenance Requirement – Structures Maintenance

Scope: A civil construction within the Area Network, situated under, over or adjacent to the Strategic Road Network. Structures include, but are not limited to:

- Overbridges;
- Underbridges of enclosed length less than 150m;
- Subways of enclosed length less than 150m;
- Footbridges;
- Cycle bridges;
- Retaining Walls;
- Culverts with a clear span or internal diameter greater than 0.9m;
- Buildings;
- Structural maintenance of fences, walls, screens and environmental barriers >3m in height;
- Gantries, signs, lighting columns or catenaries, CCTV masts, classified as structures in BD 63.

Non-structural elements also included within the scope of this maintenance requirement include, but are not limited to:

- Cross carriageway ducts, ducts through structures, technology equipment cabinets and all ancillary equipment (e.g. hoists, winches, covers).

Sources of information:

Inventory Type	Master Data Source	Condition Information
All Structures as defined above	SMIS	SMIS

Note: Data gaps and mitigations will be covered in the gap analysis for records and asset information as required by the service information and Annex 25.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Structures *(AMOR Part 14)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. Structures and their constituent parts are managed and maintained to minimise risks to road users.			
Structures	Structure not maintained regularly, causing defects to deteriorate rapidly [PO 1]	M	M	M
	Minor defects like graffiti not addressed, negatively impacting on Highways England's reputation			M

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (no)					Asset risks		Route asset risk
	Overbridges	Underbridges	Retaining Walls	Gantries	High Masts	Special Inspections	Asbestos Confirmed/Assumed	
A1033	0	4	1	0	0	None	-/1	See individual risk rating in SMIS
A160	0	1	0	0	0	None	0	
A162	0	2	0	0	0	None	0	
A180	13	12	0	2	0	None	-/27	
A1M	17	16	4	4	0	None	21/56	
A1	3	5	2	0	0	None	2/9	
A57	0	0	0	0	0	None	0	
A58	0	0	0	0	0	None	0	
A61	0	3	2	0	0	None	2/3	
A616	3	9	0	0	0	None	-/31	
A62	0	0	0	0	0	None	0	
A628	0	8	27	0	0	None	1/11	
A63	19	13	10	1	0	None	-/36	
A631	0	6	8	0	0	None	10/11	
A638	0	0	0	0	0	None	0	
A64	28	29	11	2	0	None	-/54	
M1	46	59	9	83	0	None	92/123	
M18	32	28	1	42	0	None	27/126	
M180	27	12	0	9	0	None	5/63	
M181	4	1	0	0	0	None	6/8	
M606	2	6	4	1	0	None	-/11	
M62	56	66	63	116	16	None	28/155	
M621	15	24	30	17	65	None	7/27	

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Structures	Inspected in accordance with BD63	Routine Maintenance (e.g. Sweeping bearing shelves & cleaning guttering) annually for every structure	

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- None identified

Indicative Defect Definitions and Responses:

Defect Category	Defect Description	Indicative Response Action
Safety	Structural damage resulting from vehicle strike	Competent person to assess the integrity of the structure. Lane closures/road closures initiated until repairs can be completed
Safety	Offensive Graffiti	Obscure or remove within 24 hours
Non-safety (H)	Broken Guttering	Repair unless included in future renewal scheme
Non-safety (L)	Inoffensive Graffiti	Obscure or remove within 6 months

6.10 Maintenance Requirement Hold Point (refer to page 3)

6.11 Maintenance Requirement – Sweeping and Cleaning

Scope: Sweeping and cleaning of:
• All motorways and their surrounds within the Area Network;
• APTRs and their surrounds within the Area Network **only** when listed in tables 15.1 or 15.2 in the Appendix to this requirement.
• ATPR and their surrounds through agreement with the local authority.
Cleaning and servicing of amenity facilities within the Area Network.
Graffiti within the Area Network.
Emptying of litter bins within the Area Network.
The management of animal fatalities within the Area Network.

Sources of information about condition data

Inventory Type	Master Data Source	Condition Information
N/A	IAM IS	

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Sweeping and Cleaning *(AMOR Part 15)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes[PO]: PO 1. The Area Network is predominantly free from litter, refuse and detritus and fly tipping PO 2. Amenity facilities are safe and serviceable PO 3. The functionality of the Area Network is not impeded by litter, debris, refuse, detritus, fly tipping or animal carcasses. PO 4. All graffiti is managed to ensure that the adverse impact on our customers experience of the Area Network is minimised. PO 5. Remove, identify, store and seek to inform owners of animal fatalities discovered within the Area Network.			
	Damage to vehicles caused by detritus on the network [PO 1,3]	L		L
	Accumulation of litter such that the requirements of the EPA are not met [PO 1,3]	L		M
	Risk to workforce from clearing hazardous materials (eg asbestos) [PO 1]	H		
	Amenity areas are not maintained to an appropriate level [PO 2]			M
	Graffiti on the network detrimental to the customer experience [PO 4]			M
	Owners of animal fatalities not identified			L

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character					Asset risks		Route asset risk
	Service Areas	Hard shoulder	Laybys 9no)	Amenity Areas (no)	Channel (lin m)	Customer Enq	Animal Fatalities	
A1033	0	N	18	0	243	20	18	N
A160	0	N	2	0	1187	16	5	N
A162	0	Y	0	0	317	1	0	N
A180	0	N	20	0	11406	42	155	N
A1M	0	Y	0	0	1779	68	96	N
A1	0	N	9	0	6902	107	35	N
A57	0	N	1	0	95	17	0	N
A58	0	N	3	0	0	1	0	N
A61	0	N	2	0	0	16	8	N
A616	0	N	3	0	138	40	39	N
A62	0	N	0	0	650		1	N
A628	0	N	13	0	890	60	12	N
A63	0	N	5	0	16066	203	154	N
A631	0	N	2	0	30	2	1	N
A638	0	N	3	0	1660	2	0	N
A64	0	N	116	0	34181	277	337	N
M1	2	Y	5	0	22795	254	288	I
M18	0	Y	2	0	9082	107	197	N
M180	0	Y	0	0	20315	60	189	N
M181	0	Y	0	0	0	10	14	N
M606	0	Y	0	0	1358	41	21	N
M62	2	Y	28	0	58950	399	349	I
M621	0	Y	0	0	7070	37	80	I

Detail Inspection and Maintenance Frequencies:

Asset Type	Detail Inspection Frequency	Maintenance Strategy	Frequency
Sweeping and Cleaning	See paved area requirement for planned Sweeping and Cleaning.		
Litter Clearance	Assessed during safety inspection	Litter picking in conjunction with grass cutting. Additional targeted litter picking based on assessments	

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

Route	Location/Description/Details	Frequency (planned litter picks per annum)
M1	Woolley MSA – All slip-roads *Litter & fast food waste on nearside and offside verges*	4
M621	J1 (Beeston) to J6 (Middleton) – all slip-roads *Litter nearside and offside verges*	4
M62	Hartshead MSA – all slip-roads *Litter & fast food waste on nearside and offside verges*	4
M62	Ferrybridge MSA – all slip-roads *Litter & fast food waste on nearside and offside verges*	4
M1	Woodall MSA – all slip-roads *Litter & fast food waste on nearside and offside verges*	4

Indicative Defect Definitions and Responses:

Maintenance Requirement	Defect Category	Defect Description	Response Times	Indicative Response Action
Sweeping and Cleaning	Non-Safety	Paved areas (motorway and APTR roundabouts and lay-bys, approach and slip roads) <grade A as defined in the code of practice on litter and refuse	Grade B or C: 14 days	Return to grade A via cleansing
			Grade D: 7 days	Return to grade A via cleansing
	Non-Safety	Paved areas (other paved areas & parts of the network) <grade A as defined in the code of practice on litter and refuse	Grade B or C: 28 days	Return to grade A via cleansing
			Grade D: 7 days	Return to grade A via cleansing
	Non-Safety	Litter Bin identified as over spilling	Not Applicable	
	Non-Safety	Instance of fly tipping on the network	Make Safe: 24Hrs	Confirm and check for hazardous content
			Repair: 28 days	Arrange and implement clear up.
	Non-Safety	Graffiti	*If Offensive*: 24 Hours	Initially cover within 24 hours, then then permanently obscure or remove
			Other: 6 months	Permanently obscure or remove
	Safety	Debris in running lane – Solid	To be cleared in accordance with AMOR table 3.1	Attend and remove debris
		Debris in running lane –Spill		Attend spill; mobilise specialist response if required, protect environmental assets.

6.11 Maintenance Requirement Hold Point (refer to page 3)

6.12 Maintenance Requirement - Tunnels

Scope: There are no tunnels on the Area 12 network.

6.12 Maintenance Requirement Hold Point (refer to page 3)

6.13 Maintenance Requirement – Camera Maintenance Plan

Scope: The *Provider* prepares an annual camera maintenance plan for maintenance and calibration of any
(1) permanent fixed; and
(2) permanent average speed enforcement cameras (excluding Highways Agency Digital Enforcement Cameras)
not installed for enforcement of a temporary speed limit for a Scheme. The annual camera maintenance plan details any necessary and desirable maintenance and calibration of the cameras so that the cameras remain serviceable, calibrated and certified for the enforcement of speed limits by the police during the next Financial Year. The annual camera maintenance plan is submitted to the *Service Manager* by the 28th February preceding the year covered by the annual camera maintenance plan.

Sources of information about condition data:

Inventory Type	Master Data Source	Condition Information
Permanent Fixed Cameras	Locally Held / 3rd Party	Locally Held / 3rd party
Permanent Average Speed Cameras	Locally Held / 3rd Party	Locally Held / 3rd party

Note: These assets are not owned by Highways England. We believe them to be owned by the local safety camera partnerships.

Uncontrolled risks to safety (S), availability (A), and Highways England Reputation (R):

Asset Type(s)	Risk Characteristic	Risk to		
	Risk	S	A	R
Asset Group: Camera's *(AMOR Part 16)*	The management and mitigation of the following risks will ensure the delivery of the following Provider Outcomes [PO]: PO 1. The annual camera maintenance plan details any necessary and desirable maintenance and calibration of the cameras so that the cameras remain serviceable, calibrated and certified for the enforcement of speed limits by the police during the next Financial Year			
	Camera Line of sight is obscured by vegetation, reducing the ability to enforce effectively [PO 1]	H		H
	Maintenance access to the camera is blocked / overgrown	M		M
	Camera is not calibrated			

Note: Maintenance of any structural components is covered within the structures requirement

Route Character and Risk Assessment:

Routes within the ASC (HAPMS Route Names)	Network character (m)	Asset risks	Route asset risk
	Description	Known Issues	
A616 Stocksbridge by pass	14no Average speed cameras	None identified	N
A61 Westwood	2no Average speed cameras	None identified	N
A616 Langsett	2no fixed cameras	None identified	N
A616 Midhopestones	2no fixed cameras	None identified	N
M606	1no fixed cameras	None identified	N

Detail Inspection and Maintenance Frequencies:

Asset Type	Inspection Frequency	Maintenance Strategy	Frequency
Camera poles	Principal Inspection 6 years		
Camera poles	General Inspection 2 years		
Camera poles	Detail Inspection Non structural Annual	Cut grass around the column bases to allow safe access	Twice a year
Feeder Pillar	Detail Inspection Annual	Cut grass around the cabinet base to allow safe access	Twice a year
Camera Infrastructure	Annual specialist service/calibration		

Based on the route risk assessment, the following exceptions to these frequencies will be adopted

- None identified

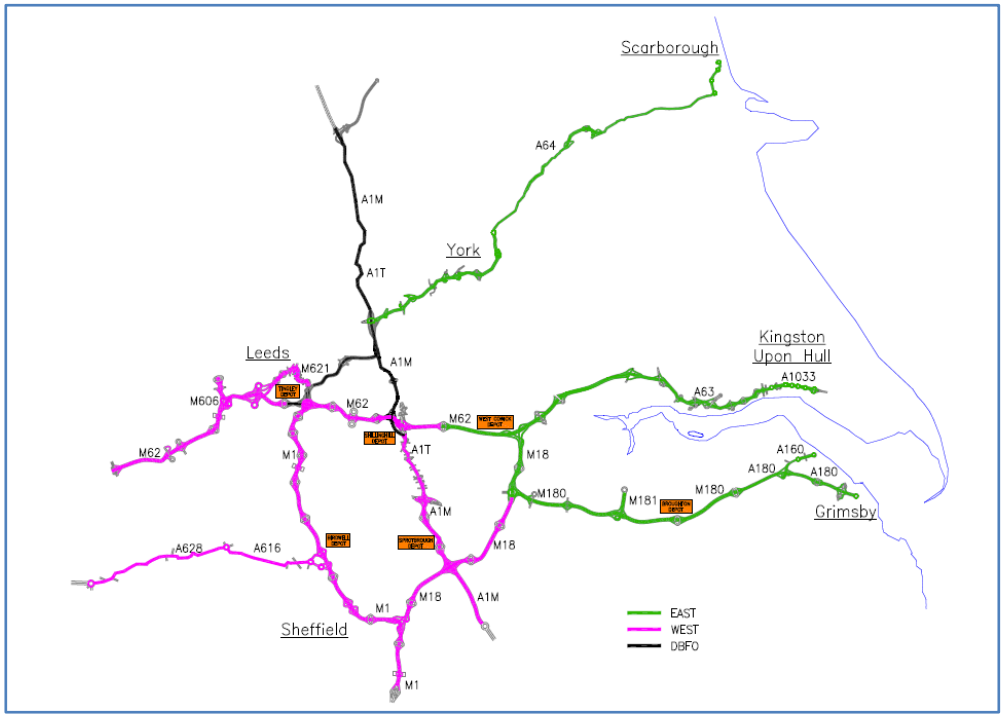
6.13 Maintenance Requirement Hold Point (refer to page 3)

[Part 7] How our risk based approach has been used to identify network Maintenance and Operations (M&O) routes and resources

Based upon the location and type of routes in Area 12, we have divided the network up in to two operational areas (East and West) as shown on the plan below. We have then sub-divided each operational area into local M&O routes to ensure our service reflects the differing needs of each route. This approach will also promote a culture of network stewardship across Area 12.

Each operational area will have dedicated Area Maintenance teams responsible for the implementation of this MRP. They will be based out of Birdwell, Sprotbrough & Tingley depots in the West and Cowick, Shillinghill and Broughton depots in the East and report to our Network Maintenance Manager who will be based at Normanton House. Our Area Maintenance teams will be assigned to individual routes.

A key function of the Area Maintenance Managers and Area Maintenance Supervisors is working with our Maintenance Operations Planner to ensure the works are planned to minimise disruption to customers and to meet the route maintenance needs.



[Part 8] Outline statement of proposed working methods for safety inspections

Our Safety inspections will be completed by two man teams inspecting from vehicles at the slowest safe prevailing speed within the prevailing traffic. Inspection teams are based at Cowick depot. Our safety inspections utilise video and GPS technology to provide additional evidence inspection completion in support of our Section 58 special defence. Our working methods include:

Approach	Benefit
Inspectors trained in the identification of defect types	Consistent and accurate identification of defects, resulting in appropriate responses and repairs being mobilised. This will reduce the number of return visits to the site before a permanent repair is affected.
Use of IAM IS to plan and deliver inspections	Transparency and assurance to the Service Manager that work is undertaken in accordance with the MRP. IAM IS will be complemented by our systems (HighStone, Watchman GIS) supporting analysis and decision making.
A-one+ Inspection and Maintenance Assurance	Independent checking of inspection output and compliance by our Inspection & Maintenance Assurance Officer. They will undertake both desk-based (compliance) and site based (quality) checks on inspections undertaken.
Find and Fix defect repair	Inspectors will be trained and equipped to identify and initiate the appropriate response to Safety defects, for example where conditions permit, using temporary material to fill potholes, providing safe, cost effective repairs that minimise disruption
Robust Change Control	Where a change to the accepted inspection frequency is justified, permission will be sought in accordance with the mechanisms in 2.01 Inspect Asset Condition & 3.01 Develop Maintenance Requirements Plan.

[Part 9] Outline statement of proposed working methods for detail inspection

Our working methods, in addition to those in the previous section will include:

Approach	Benefit
Use of specialist supply chain	To ensure specialist activities are delivered safely and in a cost effective manner we will utilise our supply chain to complete these inspections, for example roped access to structures and confined space entry teams.
Use of technology to support inspection records capture	Use of a broad suite of technology to record inspections. Our solutions will include IAM IS Mobile Mapper for records loaded directly in to IAM IS, Android Mobile applications linked to HighStone for records not entered in to IAM IS, PocketGAD for Geotechnical records and specialist software such as HADDMS compliant CCTV survey software.

Our six highways inspectors are based at Cowick depot. Our structures inspectors will be based at Cowick depot. Specialist inspections (soft estate, electrical etc) will be managed by our Asset Inspection Manager, drawing on resources from A-one+ and our supply chain.

[Part 10] Outline statement of proposed working methods for maintenance activities

To provide the AMOR service in Area 12, we will use our dedicated Maintenance & Operations Team whose focus will be the safe and timely delivery of planned and reactive maintenance services. They will make sure the network remains safe, available and tidy.

Our Area Maintenance Managers will be based at operational depots with the Area Maintenance teams driving a culture of ownership among the multi-skilled workforce, taking pride in their patch.

Our Inspection & Maintenance Assurance Officer will undertake checking of the decision making (what was done), compliance (timescales) and the quality of the activity. They will provide evidence of these checks to the Service Manager to demonstrate MRP compliance.

[Part 11] Resourced programme of planned preventative maintenance.

Our annual planned preventative maintenance programme and has been developed in Primavera P6 and has been resource loaded. We use this programme to identify who is going to undertake the work, frequency of operations and timescales. The programme covers our entire AMOR service.

Amendment record

Revision	Amendment Date	Amendment raised by	Brief description
V1.0	31/5/2016	n/a	Date of Highways England acceptance of first issue of plan.
V2.0	24/05/2017	[redacted]	First annual review. All sections reviewed and updated. Only in year amendments will be recorded in red.