

Somerset Rivers Authority Joint Scrutiny Panel Paper

Title: The Highways Enhanced Maintenance Programme, (W4) – Resilient infrastructure.

RECOMMENDATION

The SRA Joint Scrutiny Panel is asked to:

- Note, review and comment on the Highways Enhanced Maintenance Programme

Purpose of the item;

The SRA Joint Scrutiny Panel is asked to note, review and comment on the below paper, which seeks to use available data to evidence the benefits, both direct and indirect, of delivering an annual programme of Enhanced Highway Maintenance.

(a) Enhanced Maintenance Programme – background and context;

The SRA has funded an Enhanced Maintenance Programme for a number of years. Initially works included 'Enhanced Gully Emptying' and 'Enhanced Drain Jetting'. More recent additions include 'Enhanced Silt trap Emptying' and 'Enhanced Trash Screen Clearance'.

The Enhanced Maintenance Programme is intended to provide an extra level of flood protection and resilience. The programme reduces localised highway flooding, with associated safety benefits to highway users, keeps roads open, communities accessible and safeguards properties from flooding.

Enhanced Gully Emptying;

The SRA funding has supported the delivery of an enhanced mechanical clean to the SCC pre-identified highest priority gullies (Flood susceptible). SCC clean these assets annually. The SRA funding enables approximately 25,000 high risk gullies to benefit from a biannual cleaning programme.

SCC's annual planned gully emptying programme consists of approximately 70,000 gullies.

Enhanced Drain Jetting;

The SRA funding has supported the delivery of an enhanced drain jetting service. This represents a separate, and additional service. It does not replace or backfill elements of the

service that may have been removed as part of in-house adjustments to SCC's service level provision.

In 2020/21, the SRA funded drain jetting works to 251 locations, countywide.

Enhanced Silt trap Emptying;

The SRA funding has supported the development of a dedicated enhanced cleansing programme to specifically target approximately 100 silt-traps, countywide, as part of a proactive annual programme of maintenance.

Enhanced Trash Screen Clearance;

The SRA funding has supported the development of a dedicated enhanced cleansing programme to specifically target approximately 40 trash screens in the Somerset West and Taunton Deane area, as part of a proactive annual programme of maintenance.

(b) Review of available data;

SCC Highways data does not enable a direct analysis of mitigation of flood risk and/or an overall assessment of benefit. The highways data is more aligned to enabling an understanding of asset condition which subsequently contributes to wider asset management strategy of the highway network.

However, conclusions can be drawn from the data about the effect of SRA investment in reducing flooding on and near the highway albeit with some caveats.

It is acknowledged that whilst the report discusses all aspects of the Enhanced Maintenance Programme, the data captured predominantly relates to asset condition of highway gullies rather than specific silt traps, trash screens or complete drainage systems.

That said, silt traps and trash screens would be included in this data, albeit referenced as a highway gully due to architecture of the SCC reporting system (Confirm).

Not all road closures and/or lane closures are recorded in relation to flooding events. Not all flooded roads are reported by the public, observed by the highway's teams. The requirement to undertake closures, due to flooding, is typically in an emergency situation rather than a planned, co-ordinated event. Further still, where roads are recorded as flooded, the extent of flooding, cause and duration are not recorded.

1. Has the number of gully enquiries reduced as a result of SRA investment? (Appendix 2).

Total number of enquiries received by the public against the specific link and sections related to assets supported by the SRA Enhanced Maintenance Programme appears to be consistent across the available data range.

It is noted that of all enquiries received, 68%-73% of all asset link and sections received zero (0) enquiries – 'No concerns'.

It is noted that of all enquiries received, 98%-99% of all asset link and sections received 1-4 enquiries – 'General Concerns' and 'No concerns'.

Summary;

Given the location of 'flood susceptible' assets, (highway drainage systems, gully, trash screen or silt trap), enquiries are likely to be received in response to storm events, periods of high rainfall. In general, residents are aware of the importance of the highway drainage systems and the need for regular maintenance. Therefore, it is common for SCC to receive service requests related to the performance of the highway gullies and assets at such locations on a regular basis, irrespective of a need for intervention.

Relevant FAP Objective(s) – 1 & 2.

2. Has the number of service requests reduced as a result of SRA investment? (Appendix 3).

SCC can respond to enquiries in several ways, 'no action' or a 'Service Request' is raised for intervention.

Service requests are raised by the Highways Superintendent following an ad-hoc inspection or after an enquiry has been received by a member of the public. Typical service requests include;

- Jetting (e.g., mechanically clearing the drainage systems).
- Gully cleansing (e.g., hand-digging, mechanical emptying, grip clearing).

The total number of service requests generated against the specific link and sections related to assets supported by the SRA Enhanced Maintenance Programme appears to have fallen considerably across the available data range. (1144 in 2015/16 to 728 in 2019/20 – 26% reduction).

That said, for clarity, a single service request can be variable in terms of cost, scope and nature of the works required. A service request is attributed to any order raised by the Highways Team. (e.g., if the intervention is to clean 1x number highway gully, that is a service request. If the intervention is to mechanically jet 100m of drainage system, that is also a service request).

It is acknowledged that there are peaks in the data between 2015/16 and 2019/20.

Summary;

Storm Angus (late Nov 2016). Strong wind across the South of England and heavy rain causing flooding to parts of the South West England. Legacy felt into 2017.

Given their location, 'flood susceptible' assets, (highway drainage systems, gully, trash screen or silt trap), service requests are likely to be generated in response to storm events, periods of high rainfall. In general, residents are aware of the importance of the highway drainage systems and the need for regular maintenance. Therefore, it is common for SCC to receive service requests related to the performance of the highway gullies and assets at such locations on a regular basis, irrespective of a need for intervention.

Relevant FAP Objective(s) – 1, 2 & 5.

3. Has the number of recorded 'flooding interventions' reduced as a result of SRA investment? (Appendix 4).

SCC can respond to enquiries in several ways. This can include 'no action', raise a 'Service Request' or action an 'Intervention'.

Issues such as flooding can also be identified and actioned by Highways Superintendents on an ad-hoc basis when undertaking their daily duties.

Interventions are actioned by the Highways Superintendent following an on-site inspection and assessment of risk. Typical reactive Interventions include;

- Full road closure.
- Part closure/Lane closures actioned with Traffic Management set up (e.g., temporary traffic signals).
- Road remains open, warning signing to be erected on site (e.g., 'FLOOD').

Total number of interventions actioned against the link and sections related to assets supported by the SRA Enhanced Maintenance Programme appears to be consistent across the available data range. 94%-97% received zero (0) interventions.

Total number of interventions actioned against the A and B road network link and sections related to assets supported by the SRA Enhanced Maintenance Programme appears to be consistent across the available data range. 90%-95% received zero (0) interventions.

It is acknowledged that the data provided for 2017/18 appears to be an outlier.

Summary;

Given the location of 'flood susceptible' highway assets, (highway drainage systems, gully, trash screen or silt trap), and in particular those on the A and B road network, the work of the SRA Enhanced Maintenance Programme ensures critical drainage assets receive regular maintenance and therefore, interventions are minimalised and 'connectivity' is maintained.

It is acknowledged that specific locations warrant regular and continuous intervention (e.g., Pibsbury Bends, A372 Huish Episcopi – South Somerset).

Relevant FAP Objective(s) – 1, 2, 5 & 6.

4. Have the recorded silt levels with highway gullies reduced as a result of SRA investment? (Appendix 5).

The Kaarbontech Gully Smart Software system was introduced into the highways maintenance contract in 2017/2018. Asset information is provided by the gully emptying operatives by way of the use of a handheld tablet. Asset condition data is recorded on arrival and prior to cleaning taking place.

Across the available data range, it has been recorded that between 24%-44% of all gullies inspected then cleaned were observed to contain 25% or less debris within the unit.

Across the available data range, it has been recorded that between 59%-89% of all gullies inspected then cleaned were observed to contain 50% or less debris within the unit.

Across the available data range, it has been recorded that between 11%-41% of all gullies inspected then cleaned were observed to contain 75% or above debris within the unit.

It is acknowledged that the data appears to peak in the 2019/2020 financial year.

Summary;

Data provided by the gully operatives is subjective as it is based on a visual inspection of the internal condition of the highway gully, outlet pipe and sump.

The recorded data is specifically related to the asset condition of highway gullies. The data does not record asset condition of silt traps or trash screens.

Relevant FAP Objective(s) – 1 & 2.

(c) Conclusions;

Measuring the success of the Enhanced Maintenance programme is difficult given the multitude of variables with which come in to play. (e.g., weather events, timing of clean/emptying in relation to weather event(s), nature of the weather event(s), nature of flooding event(s), modifications to off highway, private land (change of land use), modifications within local catchment area etc).

Whilst outside the scope of the paper, consideration should be given to the impacts of climate change, and more specifically its impact on Somerset. Given the understanding that we are now in a period of more frequent rain/storms events, one would suggest that the SRA Enhanced Programme ensures that additional flood resilience and asset capacity is provided to those flood susceptible locations.

It is possible that cessation of the Enhanced Maintenance Programme may prompt an increase of 'service requests', 'reactive services' and 'interventions' attributed to those assets which currently benefit from this proactive work.

Finally, the Enhanced Maintenance Programme provides positive exposure for the SRA across the whole of Somerset. The gully emptying, jetting, silt trap emptying and trash screen clearance operations are visible 'on the ground' services.

RECOMMENDATION

The SRA Joint Scrutiny Panel is asked to:

- Review and comment on the Enhanced Maintenance programmes.

Date: January 2022.

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Appendices:

Appendix 1: Location plan – SCC Planned gullies & SRA Enhanced Gully Emptying assets.

Appendix 2: Enquiries received - SRA Enhanced Maintenance Assets.

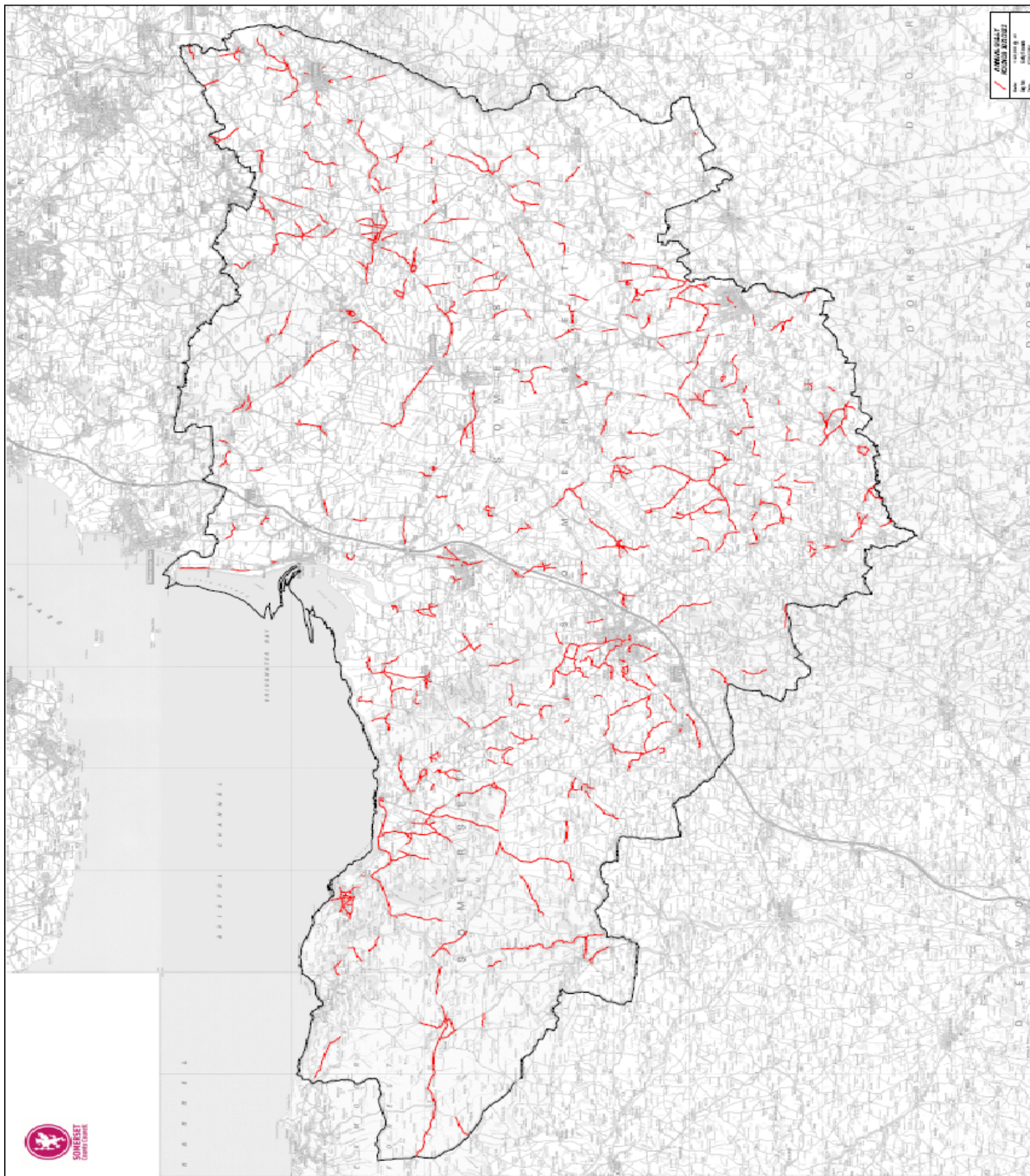
Appendix 3: Service Requests generated - SRA Enhanced Maintenance Assets.

Appendix 4: Interventions Actioned - SRA Enhanced Maintenance Assets.

Appendix 5: Recorded silt level - SRA Enhanced Maintenance Assets (Gullies).

Appendix 1: Location plan – SCC Planned gullies & SRA Enhanced Gully Emptying assets.

Red lines on the map below indicates the locations of the SCC Flood susceptible highway gullies. The high-risk assets receive a biannual clean as a consequence of the SRA Enhanced Gully Emptying workstream.



Appendix 2: Enquiries received - SRA Enhanced Maintenance Assets.

The highway network is built up by many individual components, of varying length. These components are referred to as 'Link and Sections' (L&S). Any work that is undertaken by SCC (planned or reactive) is recorded against the respective Link and Section as a means of recording asset condition data. (e.g., number of potholes reported/repaired etc).

Each enquiry (Enq) is assigned a specific location relevant to the issue identified and consequently a pre-determined asset Link and Section (L&S).

2015/16		2016/17		2017/18		2018/19		2019/20		
No. Enq	No. L&S	No. Enq	No. L&S	No. Enq	No. L&S	No. Enq	No. L&S	No. Enq	No. L&S	
813	575	859	605	859	603	863	634	878	599	0 enquiries
344	229	383	247	379	243	326	214	247	260	1-4 enquiries
45	9	47	7	94	13	83	15	115	19	5 or more enquires
	575		605		603		634		599	Total '0' Enq (No concerns)
	71%		70%		70%		73%		68%	
	804		852		846		848		859	Total '1-4' Enq (General concerns)
	99%		99%		98%		98%		98%	
	9		7		13		15		19	Total '5 or more Enq (Concerns)
	1%		1%		2%		2%		2%	

Appendix 3: Service Requests generated - SRA Enhanced Maintenance Assets.

SCC can respond to enquiries (Enq) in several ways. This can include 'no action' or a 'Service Request' is raised if work is deemed necessary.

Each Service Request (SR) is assigned a specific location relevant to the issue identified and consequently a pre-determined asset Link and Section (L&S).

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
	No. SR's	No. SR's	No. SR's	No. SR's	No. SR's
Drain Jetting (Reactive)	577	492	560	440	461
Gully Cleaning (Reactive)	567	743	802	629	267
Total No. SR's	1144	1235	1362	1069	728

Appendix 4: Interventions Actioned - SRA Enhanced Maintenance Assets.

SCC can respond to enquiries (Enq) in several ways. This can include 'no action', generate a 'Service Request' or action an 'Intervention'.

Each intervention is assigned a specific location relevant to the issue identified and consequently a pre-determined asset Link and Section (L&S).

	Total network No. L&S's	No. L&S with '0' SR's	No. SR's raised	% L&S's with '0' SR's
15/16	813	773	48	95%
16/17	859	810	70	94%
17/18	859	859	0	100%
18/19	863	835	35	97%
19/20	878	821	71	94%
	Total A & B network No. L&S's (Enhanced Gully Emptying Assets)			% L&S's with '0' SR's
15/16	267	250	24	94%
16/17	265	237	45	90%
17/18	265	265	0	100%
18/19	265	252	16	95%
19/20	264	246	21	93%

Appendix 5: Recorded silt level - SRA Enhanced Maintenance Assets (Gullies).

SCC, in partnership with its term maintenance contractor uses a gully asset management office system (Kaarbontech) to monitor in real time the progress of gully cleansing programmes, access historical records of all gully inspections, cyclical maintenance as well as review asset condition data (silt levels and defects).

In relation to recording silt levels, the Kaarbontech software functionality allows operatives to record the silt level of any given asset at the time of arrival and prior to cleaning. It is this data that has been summarised below.

	Recorded silt levels in highway gullies						Total No. Gullies cleaned
	Nil	0%	25%	50%	75%	100%	
21/22	1639 6%	731 3%	9070 35%	6792	6674	960	25866
			11440 44%	26%	26%	4%	
20/21	556 3%	602 3%	5042 25%	5615	7525	876	20216
			6200 31%	28%	37%	4%	
19/20	616 2%	1037 4%	6593 25%	12356	4920	543	26065
			8246 32%	47%	19%	2%	
18/19	520 2%	1968 7%	6638 24%	14549	3040	693	27408
			9126 33%	53%	11%	3%	
17/18	274 1%	1642 7%	7027 30%	11977	2026	414	23360
			8943 38%	51%	9%	2%	
All	3605	5980	34370 43955 36%	51289 42%	24185 20%	3486 3%	122915