

## **5 Year Structures and Drainage Programme Updates**

At Cabinet in June 2016, the 15 year Highway Asset Strategy for assets including Roads, Pavements, Structures and Drainage, was approved. This 15 year strategy will be split into three 5 year programmes of work. The plans for the development of the 5 year road and pavement programmes were discussed at the summer local committees and Members have had the opportunity to suggest schemes to be prioritised for these programmes. We would now like to share with Local Committees how we are developing the 5 year programmes for Structures and Drainage and invite local committees to help us shape the programmes.

### **5 Year Structures Programme**

The proposed capital Structures budget will see a spend of £15 million over the next 5 years. This level of investment will enable development of a strategic plan to manage asset condition in the long term. Approximately 15 major strengthening/reconstruction schemes will be completed over 5 years, with approximately 50 further capital maintenance projects.

Schemes will be prioritised in accordance with SCC prioritisation policy for managing highway assets using our Bridge Management System, which allocates a condition index score to each structure following a detailed inspection carried out in accordance with the Management of Highway Structures Code of Practice. In addition, when a structural assessment identifies that all or part of a structure is considered to be, or is about to become inadequate or unsafe it will be included in the programme.

All major strengthening/reconstruction schemes will be rated based on condition and risk. Due to the potentially critical timeline these priorities must be adhered to, however Local Committees are invited to contact the Structures Asset Manager with suggestions of any structures that should be prioritised for capital maintenance projects, which members feel have heritage or local community importance.

### **5 Year Drainage Programme**

The Capital Drainage Programme has been allocated £8 million over the next 5 years to address problems on and from the highway as recorded and prioritised on the Surrey Wetspots Database. As many flooding issues are complex and a complete resolution of the problems is not always possible, a range of different scheme options are considered in order to identify the works that will deliver the best value for money. In line with our role as the Lead Local Flood Authority and the strategic objectives set out in the Local Flood Risk Management Strategy, opportunities to address flooding issues to communities within the wider catchment are also considered in order to reduce overall flood risk within the county. The size and cost of schemes can vary greatly and some larger schemes are split into phases over multiple years where there are seasonal constraints but an annual budget of £1.6m will enable delivery of approximately 12 schemes per year.

The prioritisation of wetspots is based around the observed impact of flooding as well as the frequency and duration. If flooding is deemed to pose a significant safety risk, this triggers a site inspection from an officer who will validate the wetspot score using a Wetspots Safety Checklist to more definitively reflect the level of risk in the prioritisation score. Schemes can be shifted forward or backward on the existing programme where there is potential for joint

work. There are opportunities for securing external funding contributions as long as it does not impact the delivery of schemes addressing significant safety issues.

Members are invited to influence the programme by reviewing the recorded flooding impacts in the wetspots currently on the programme, and providing updated information where the current issue(s) is not properly represented resulting in an increase or decrease to the score. Members can also report flooding issues not currently represented on the Wetspots Database to the local highway teams in order to get them added; if the score is significant, this can result in the wetspot being accelerated into the current 5 year programme.

### **Further information**

The Full prioritisation Policy and Criteria for Highway Assets can be found at:

<http://www.surreycc.gov.uk/roads-and-transport/road-maintenance-and-cleaning/maintaining-our-roads-and-pavements/how-we-prioritise-road-maintenance>

An extract of the policy showing the criteria for Structures and Drainage has been provided with these papers.

A list of wetspots can be found at;

<http://www.surreycc.gov.uk/roads-and-transport/road-maintenance-and-cleaning/drainage-and-flooding/flooding-and-wetspots>

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## Structures Prioritisation Value Management Scoring

### 1. Highway Maintenance/Improvement Issues

The Bridge Condition Index is determined from a detailed Inspection, in accordance with the Management of Highway Structures Code of Practice 2006, and The Inspection Manual for Highway Structures 2007.

Structures with a Bridge Condition Index of an element less than 65 would have high priority reactive maintenance carried out. When a structural assessment identifies that all or part of a structure is considered to be, or is about to become, structurally inadequate or unsafe it would be prioritised for major maintenance.

BCI Range	Average Stock Condition	Critical Stock Condition
100 → 90 Very Good	Bridge stock is in a <b>very good</b> condition.	Represents <b>very low risk</b> to public safety.
90 → 80 Good	Bridge stock is in a <b>good</b> condition.	Represents a <b>low risk</b> to public safety.
80 → 65 Fair	Bridge stock is in a <b>fair</b> condition.	Some structures may represent a <b>moderate risk</b> to public safety.
65 → 40 Poor	Bridge stock is in a <b>poor/substandard</b> condition.	Some structures may represent a <b>significant risk</b> to public safety.
40 → 0 Very Poor	Bridge stock is in a <b>very poor/substandard</b> condition.	Some structures may represent a <b>high risk</b> to public safety.



<b>Condition</b>	<b>Score</b>
Red - Very Poor – BCI score less than 40. High risk to public safety, immediate reactive maintenance followed by priority scoring on re-scored BCI	Immediate reactive maintenance
Amber – Fair/ Poor – BCI score between 40 and 80. Moderate risk	250
Good – BCI score above 80. All elements satisfactory, low risk	50

Assessment of load carrying capacity must be carried out with a maximum spacing between assessments of 20 years.

Bridges:

<b>Assessment result</b>	<b>Score</b>
3T or less	100
7.5T	60
Above 7.5, but less than 38T	50
40T/38T	20

Other Structures:

<b>Assessment of fit for purpose</b>	<b>Score</b>
Low risk	60
Medium risk	100
High risk – immediate reactive maintenance to be carried out	Immediate reactive maintenance.

## 2. Network Hierarchy

The network hierarchy reflects the impact of disruption caused by lane or road closures for construction work.

Hierarchy of road	Score
SPN 1	100
SPN2	100
SPN3	50
SPN4a	25
SPN4b	10
High community need, eg only means of access	100

### 3. Risk

This section includes project risk, due to programming issues and the interests of third parties.

Risk	Score
Parapets not to current standards	50
Carriageway height clearance not to current standards	50
Structure on Close Monitoring List for more than 12 months	100
Weight restriction in place	100
Width restriction in place	80
Height restriction in place	80
Embankment failure	100
Scour	100
Foundation movement	100
Ecologically sensitive area – restrictions on when work can be carried out	25
Abnormal load route	50
Road over rail incursion site	100
Traffic management has been in place as an interim measure for	100

more than 12 months	
Bridge is owned by third party	25
Statutory undertakers plant requires diversion or supporting	25
Work requires FDC from the Environment Agency	25
Scheme requires land purchase	25
Scheme requires planning permission	25
Scheme contributes to other strategies or programmes	100

#### **4. Value for Money**

There is a national requirement to submit the value of bridge stock using the CIPFA Structures Toolkit. The project will be completed in 2013.

The web based version of the Bridge Management System (Bridgestation) will enable lifecycle planning to indicate if intervention maintenance will reduce costs over the life a structure.

#### **5. Network Management**

No score is currently proposed and the value will be determined during the work's programming phase on scheme by scheme basis.

### Drainage Prioritisation Value Management Scoring

S = Single: one time score per Wetspot

C = Cumulative: multiple scores allowed per wetspot

Estimated Max score = 200

#### 1. Highways Maintenance/Improvement Issues

N/A for Wetspots – Drainage Assets often unknown

#### 2. Network Hierarchy

Hierarchy of Road	Points	Score Type
SPN 1	40	S
SPN 2	20	S
SPN 3	10	S
SPN 4a	5	S
SPN 4b	5	S

#### 3. Risk (Applies to all wetspots)

Safety*	Points	Score Type
Confirmed injury due to/exacerbated by wetspot	150	S
Confirmed accident due to/exacerbated by wetspot	30	S
High Risk of Accident	15	S

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<b>Property flood</b>	<b>Points</b>	<b>Score Type</b>
Internal Property Flood	35	C
Recurring Internal Property Flood	50	C
Single External Property Flood	5	S
Multiple External Property Floods	10	S
Involvement of vulnerable person(s) with internal property flood	30	S

<b>Social &amp; Economic impact</b>	<b>Points</b>	<b>Score Type</b>
Affects Access to/Functionality of Critical Services or Infrastructure	60	S
Major Economic or Social Impact (State Reason)	40	S
Causes major congestion and/or restricts access to schools	20	S
Complete flooding of footways	10	S

<b>Miscellaneous</b>	<b>Points</b>	<b>Score Type</b>
Foul Sewage Surcharge	30	S
Report of Safety Issue from Emergency Services	30	S
Flooding persists for a significant time after rainfall has stopped (Y/N)	30/1	S
Claims/Excessive cost on callouts	20	S
Exceptionally Frequent Flooding (To be agreed at annual meetings)	Total score X 1.5	Multiplier

\* Safety scores allocated during the desktop exercise used to produce the wetspot list will be validated by site safety assessments on each site by drainage engineers. They will use an agreed checklist to ensure that subjectivity is not a factor in the scoring system to ensure consistency of scores across the county. If an engineer carrying out a site safety assessment identifies that a site poses a significant and immediate safety risk they will seek approval from the Drainage Asset Team Leader to allocate additional points to “boost” the scheme to the current years’ programme.



#### **4. Value for Money**

The budget will be split at a ratio of 4:1 for prioritised needs based schemes and more minor schemes that could prevent more significant work being required later on. Typically they minor schemes would have a total value of less than £25,000.

Value for money cost savings may be achieved under Operation Horizon during the later phases of the five year programme which could require some deviation from priority order.

#### **5. Network Management**

No score is currently proposed and the value will be determined during the works' programming phase on scheme by scheme basis.

### Prioritisation Glossary

<b>BCI</b>	<b>Bridge Condition Index</b>
	This is the industry standard measurement of bridge condition derived from inspections carried out by trained bridge inspectors, in accordance with the Management of Highway Structures Code of Practice 2006, and The Inspection Manual for Highway Structures 2007. General Inspections are carried out every 2 years, principal inspections every 6 years and at risk structures are inspected at a frequency determined based on the level of risk.
<b>BMS</b>	<b>Bridge Management System</b>
	A System use to store, manipulate, manage and retrieve data and information related to Bridges.
<b>CIPFA</b>	<b>Chartered Institute of Public Finance and Accountancy</b>
	The CIPFA code of Transport and Infrastructure Assets provides details of how Local Authorities should value their Highway Assets in order to provide information required by HM Treasury for Whole of Government Accounting.
-	<b>Embankment</b>
	A bank formed above the natural ground level that creates the approach to a bridge. The purpose of an approach embankment is to raise the road level to align with the bridge deck level.
-	<b>Parapet</b>
	A wall/rail/fence that runs along the outside edges of the bridge deck, or retaining wall, parallel to the direction of traffic flow. The purpose of the parapet is to prevent users from accidentally falling off the bridge.
<b>FDC</b>	<b>Flow Duration Curve</b>
	Graph that shows the proportion of time during which discharges of water equal or exceed a specified measure
<b>LoBEG</b>	<b>London Bridges Engineering Group</b>
-	<b>Lifecycle Planning</b>
	By considering an asset over its whole lifecycle, it is possible to select the optimum point to intervene with the optimum treatment. Surrey County Council is using tools newly developed by the Highway Industry to carry out this work on key highway assets to better inform future programmes of work.

-	<b>Scour</b>
	Erosion of earth around a bridge, generally affecting the foundations of structures built in watercourses.
<b>SPN</b>	<b>Surrey Priority Network</b>
	The network by which Surrey manages and maintains the public highway within the county. The SPN defines hierarchies for all elements of the highway network including roads, pavements and cycleways. It reflects the needs, priorities and actual use of each element of the network and is used to identify needs based provision of services and identify appropriate levels of service.
-	<b>Wetspot</b>
	"Wetspot" is a term used by the lead local flood authority (Surrey County Council) to describe the location of a flood incident that has been reported.

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