

# HEREFORDSHIRE PUBLIC REALM CONTRACT 2020/21

## ANNEX 14 – STRUCTURES

### SERVICE OVERVIEW

SERVICE SUMMARY		
		Output
Capital Activities	Capital Minor Maintenance Works	Small works programme generated from Inspections programme prioritised in line with Structures LCP. Small schemes include small structural repair works, Concrete repairs, Joint Repairs, Parapet Repairs/Upgrading, Scour Protection Works. See Appendix D
	Bridge Strikes	Hit and Run and Green Claim Bridge Strikes dealt with in year without interrupting planned maintenance programme
	Capital Major Schemes & Design	As embedded programme in Appendix D.*  *This is an aspirational programme, currently overprogrammed. Should further budget be allocated, schemes identified would be completed.
	Principal Inspections	Principal Inspections conducted on a sixth of the asset (6 year inspection regime)
	Structures Diving Inspections & Maintenance	Deep water and scour effected bridges inspected annually & subsequent Maintenance Works

	Stowfield – PROW Rail Bridge Repairs	Contribution to Gloucester CC for repair works by both councils)
Revenue Activities	Structures General Inspections	Bridge Condition Index values generated for half the asset (2 year inspection regime) Principal Inspections conducted on a sixth of the asset (6 year inspection regime)
	Development Control & Network Management	Dealing with issues and infringements on the network caused by businesses and members of the public Control of Abnormal Loads
	Safety Barrier Inspections	Safety Barrier Inspections, all are on a biennial inspection program carried out over a rolling two year period. These are undertaken in the period January to March.
	Planning and Adoptions	Dealing with developer enquires and proposals for new Highway Structures. Reviewing and approving AIPs. Scale/scope of works if any not known at this time

Performance Indicators		
	Indicator	Target
OPIs	<b>OPI 6 – Bridge Inspections</b> - % of Bridge Inspections completed Made up of a combination of % Bridge inspections undertaken from planned program and % Safety Barrier inspection undertaken from planned program	100%
	<b>OPI 10 – Programme Management</b> - % of schemes on time Percentage of schemes that commence within 5 days of published date	80%
	<b>OPI 11 - Complaint Handling</b> Percentage of complaints responded to in accordance with timescales agreed with the complainant	Response within 1 month
	<b>OPI 12 - Risk Management</b> - Based on the RAG rating for risk where: 1. All Red risks must be reviewed monthly	100%

	<ul style="list-style-type: none"> <li>2. All amber risks every 6 weeks</li> <li>3. All yellow risks every 2 months</li> </ul>	
Strategic KPI	<p><b>SPI 1- Killed and seriously injured</b> The number of people killed or seriously injured in road traffic accidents</p>	<p>Upper 55 Lower 63</p>
	<p><b>SPI 7 – Bridge Condition Index</b> Percentage of bridges which have a score of Fair, Good or Very Good</p>	<p>Upper 92% Lower 88%</p>
	<p><b>SPI 8 - Third party claims reduction</b> Percentage of indemnified third party claims repudiated</p>	<p>Upper 80% Lower 70%</p>
	<p><b>SPI 9 - Flooding resilience</b> No. of properties at risk of flooding as a result of highway defect</p>	<p>Upper 30 Lower 45</p>
	<p><b>SPI 10 - Skills and employability</b> Meeting a range of skills and employability outcomes aligned to the Employers Skills Academy outcomes</p>	<p>Upper 4 Lower 3</p>
	<p><b>SPI 11 Local Spend</b> Percentage of work by value delivered by suppliers who have a base in Herefordshire together with workforce costs for those living in Herefordshire</p>	<p>Upper 30% Lower 24%</p>
	<p><b>SPI 15 - Customer satisfaction</b> Percentage of customers satisfied based on the annual national highways and public transport satisfaction (IPSOS MORI) Survey</p>	<p>Upper 39% Lower 36%</p>
	<p><b>SPI 16 - Continuous improvement</b> Identification of savings projects/ initiatives</p>	<p>Upper 10% Lower -10%</p>

**SERVICE SUMMARY**

BBLP will manage HC’s bridges and other structures assets in line the policy set out in the Local Transport Plan, the strategy set out in the Transport Asset Management Plan and the tactical approach documented in the Structures Lifecycle Plan. This includes providing technical advice to support network management services such as adoptions of new assets, management of abnormal loads, regulating private highway structures, dealing with emergencies relating to highway structures, working in conjunction with other statutory asset owners (such as Utilities, Network Rail and Rail Residuary Board) and managing substandard structures.

Inspections of structures will be undertaken in accordance with National guidance. For every year, this equates to circa 600 inspections across the county. Further details of these inspections have been included in Appendix D. A forward programme will be continually maintained of defects and associated actions. Works from this forward programme of identified works are prioritised in accordance with the principles outlined in the Structures LCP. Higher benefit-cost preventative maintenance will be used where possible, however budgetary constraints and asset condition is likely to mean that reactive maintenance is likely to take higher priority.

The service is required to react to incidents and defects that deteriorate rapidly during the annual plan period. Where this occurs, it is likely to impact on the planned works outlined in this document.

We will use the AMX asset management system, ensuring easy access to all bridge details, bridge histories, allowing us to make informed decisions regarding future maintenance, carry out lifecycle planning, asset valuation and develop effective maintenance programmes. We can share experience from the wider BB group and our supply chain for specific issues, which includes recognised experts in their field to support the local team and deliver an innovative and flexible service.

SERVICE OUTCOMES	
OUTCOMES	HOW WILL THE OUTCOME BE ACHIEVED
Improved access to services	<p><u>Measured by SPI 9 - Flooding resilience</u></p> <ul style="list-style-type: none"> <li>Supporting colleagues in Annex 7 to improve flood resilience by managing those culverts large enough to be considered structures</li> </ul>
Improved network asset	<p><u>Measured by SPI 7 – Bridge Condition Index and SPI 8 - Third party claims reduction</u></p> <ul style="list-style-type: none"> <li>Collect Asset Data - General and Principal Inspections (including diving inspections) to collect both condition and inventory to improve knowledge of the asset</li> <li>Develop subsequent year programmes for Structures. Provisional programmes developed for the subsequent 3 years.</li> <li>Prioritise programmes according to importance to reduce claims</li> <li>Major Schemes - Inspection and asset management approach develops a proposed forward programme to be delivered the following years. Works will first be developed as a detailed design in year 1 for delivery by our own construction teams or specialist subcontractors in subsequent years.</li> <li>Minor Schemes - Inspection and asset management approach develops a proposed annual programme to be delivered during the following year. Works then delivered via construction teams and sub-contractors.</li> </ul>
Safer network	<p><u>Measured by SPI 1- Killed and seriously injured.</u></p> <ul style="list-style-type: none"> <li>Inspections to detect and mitigate issues on the network.</li> <li>Issues are prioritised according to a risk based approach that encompasses safety</li> <li>Safety Barriers inspected biennially</li> </ul>

Contribution to the local economy	<p><u>Measured by SPI 11 Local Spend</u></p> <p>The structures team strives where possible to use local resources with local knowledge.</p>
Sustainable delivery	<p><u>No measurable SPI direct to this Annex</u></p> <p>Whole life cycle approach to maintenance will reduce long term impact on the environment over future decades.</p>
Value for money	<p><u>Measured by SPI 16 - Continuous improvement</u></p> <ul style="list-style-type: none"> <li>• Undertake regular review with processes and structures service; and updated if required.</li> <li>• Continue to support Annex 8 work to strengthen current service against latest Incentive Fund Band 3 requirements. Note Band 3 is currently the highest achievable rating.</li> <li>• Identify opportunities for external funding and bids</li> </ul>
Satisfied stakeholders	<p><u>Measure by SPI 15 - Customer satisfaction</u></p> <ul style="list-style-type: none"> <li>• Contribute to customers satisfaction based on the annual national highways and public transport satisfaction (IPSOS MORI) Survey</li> </ul>
Engaged communities	<p><u>No measurable SPI direct to this Annex</u></p> <ul style="list-style-type: none"> <li>• Contribute towards OPI for complaint handling</li> </ul>

**ASSUMPTIONS**

The following assumptions have been made and would have potential budgetary implications and impact on ability of BBLP to fully deliver service if changed.

- i) Where Herefordshire Council has a legislative or regulatory duty to act and works are required that are outside of the annual plan, then HC will seek to recover these costs and increase the contract’s budget accordingly. Should these costs not be fully or partially recovered and need to be instead funded out of the public realm contract then the level of service described in this annual plan will reduce. This includes incidents that stem from ‘Green Claims’, where a third party is at fault.
- ii) The individual schemes in the programmes of work have been selected based on the current asset data and incident knowledge at the time of writing this Annex. The priorities may change during the year, this may result in changes to the schemes undertaken, these changes will be recorded using the change management contract mechanism of Early Warnings and Compensation Events.
- iii) The data required to complete the Whole of Government Accounts ‘Structure’s Toolkit’ does not increase from that required in 2020/2021.
- iv) The condition of the network will not deteriorate at a faster rate than prior years.
- v) Extreme weather events that occur in year could require resources to be diverted.
- vi) An item for anticipated repair works resulting from Bridge Strikes will be included for in this Annex, it will be listed in the programme of maintenance works with a value based on historic experience.
- vii) Liaison for rail incursions at structures and any works with Network Rail are included in this Annex.

- viii) The historic portfolio of structures maintained are for HC highways structures only and do not those HC building or property services assets which is beyond the scope of responsibility of this annex. Any HC structures that are identified to be included in the BBLP Public Realm Contract will be maintained on a risk based approach.
- ix) Legal advice for issues associated with structures will be provided by HC and not charged to this Annex.
- x) The major Scheme (design and constructions) programme is based upon the Senior Bridge Engineer’s outline estimated initial costs, these prices have not been confirmed by a Design Consultant/Contractor/Estimator at this stage. Following commencement of the new financial year the cost associated with these schemes will be refined and confirmed through the target costing process.
- xi) Work associated with the adoption of new assets is funded via additional individual specific commissioning orders funded by the Developer.

**THE SERVICE**

**SERVICE DELIVERY**

	SERVICE	RESOURCE	DELIVERY
Planned	Capital Maintenance Works	Site Engineer + Construction Management	All year round
	Capital Major Schemes & Design	overseeing. Snr Engineer Input + Bridge Maintenance Gang + Specialist Sub-contractors	All year round
	Principal Inspections	Snr. Bridge Engineer + Structures	All year round
	Structures Diving Inspections & Maintenance	Inspector (2no.) + Engineer + Specialist Sub-contractor	First three quarters of financial year
	Structures General Inspections	Snr. Bridge Engineer + Structures Inspector (2no.)	First half of Financial Year carrying out Inspections, Second half of year prioritising data.
	Safety Barrier Inspections		All year round

Reactive	Bridge Strike Support	Snr. Bridge Engineer + Structures Inspector (2no.)	All year round
	Planning / Adoption		All year round
	Development Control & Network Management		All year round
	Ad-hoc safety inspections		All year round

**Inspections** – Immediate and urgent defects will be identified through routine highway safety inspections and reports received from the public/Police and prompt a reactive inspection.

All categories of bridge inspection will be undertaken by suitably trained and experienced staff, in accordance with the requirements and recommendations of the UKRLG Code of Practice and the Inspection Manual for Highway Structures. Any training requirements identified will be addressed by our learning and development hub and supported by wider BB group resources and available training.

General Inspections of all structures will be undertaken every two years and will be used to generate Bridge Condition Indicator (BCI) values (via AMX). The BCI values will enable objective monitoring of structural condition, both for individual structures, and for the bridge stock as a whole.

Principal Inspections will initially be undertaken every 6 years. However, we will apply a risk-based approach informed by DMRB guidance, to determine future intervals (as permitted by the Code of Practice). This will ensure inspection resources are targeted where they are most needed, generating savings in inspection costs, without any corresponding reduction in safety or increase in whole life maintenance costs.

Diving Inspections will be carried out on structures with deep water where the Bridge Inspector is unable to carry out the inspection and on structures that have been assessed as being at risk of scour. Additional diving inspections may be required following flooding events. Works identified by the diving inspection will be added to the maintenance works program.

Safety Barrier Inspections will be carried out in accordance with National Guidance. Barrier repair will then be prioritised and a programme developed for the subsequent year. Reactive inspections will also be carried out under this annex in response to collisions that occur with barriers. As part of further improvements in integrated programme delivery, a dedicated project manager is empowered with overall responsibility for delivery of a planned programme of prioritised safety barrier sites who will manage the annual budget in line with the demands of incident related and emergency barrier damage reported in year. Regular updates will be provided on the spend profile and newly discovered needs that become apparent over the course of the year. Physical works will be undertaken via Annex 3.

**Major and Minor Schemes** – The Forward Programme and Annual Plan of Works is developed utilising AMX is based upon the condition inspections that are undertaken throughout the year. Works are prioritised based on the principles set out in the Structures Lifecycle Plan. This includes prioritisation of structures on the Resilience/Strategic Network. It should be noted that the priorities may change during the year, this may result in changes to the schemes carried out, these changes will be recorded using the change management contract mechanism of Early Warnings and Compensation Events.

When planning, the Senior Structures Engineer will liaise with the Operations, Design and Build Teams to ensure all works taking place on or near the structure (including the 'bundling' of schemes) are coordinated to maximise efficiency and minimise disruption to the public.

Careful planning will be carried out for works over water, roads and railways, with full liaison with third parties such as Network Rail (for track possession). Any environmental restrictions will be taken into account, with appropriate liaison with the Environment Agency where works are carried out over or near watercourses. We will engage with the Asset Team where any land acquisition is envisaged in any options being considered and make programme allowances as appropriate.

HC are provided with expert knowledge of all types of structures maintenance and improvement works, including:

- Arch Stitching, Plate Bonding or similar Structural Strengthening Works
- Concrete repairs
- Bridge Deck Waterproofing
- Expansion Joint Repairs
- Parapet Repairs/Upgrading
- Scour Protection Works

A full set of 'as built' records is provided and the senior structures engineer ensures that the AMX is updated accordingly. The Senior Structures Engineer will also meet with the relevant Project Managers to discuss each scheme, ensuring that lessons are learnt regarding:

- Materials used
- Planning/ programming of works
- Customer interface
- Environmental Issues
- Use of supply chain
- Variations to the original design

These lessons learnt are recorded and added to the structures file

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## SERVICE SCOPE



<p>Asset Management</p>	<p><b>IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Utilise a risk-based approach to select which structures can be inspected within funding constraints</li> <li>• Manage the structures in accordance with HMEP asset management guidance</li> <li>• Maintain and continue to enhance the AMX asset data records.</li> <li>• Maintain a forward programme of known defects that have been scoped, risk assessed and prioritised.</li> <li>• Development of an Annual Plan of capital schemes, from the forward programme of known defects.</li> <li>• Provide technical advice on planning applications, note this is externally funded by Developers.</li> <li>• Non-bridge HC owned structures, such as culverts and retaining walls come under the umbrella of ‘other highway structures’ and will be inspected, and managed through AMX in the same way as bridges.</li> <li>• Provide assistance in arranging for other specialist inspections and maintenance for engineering works outside of ‘The Baseline Specification for Highway Works – Public Realm Services’.</li> <li>• Contribute to additional funding bids such as the challenge fund.</li> </ul> <p><b>NOT IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Specialist inspections and Bespoke asset management approach for highways structures other than Highway Bridges</li> </ul>
<p>Structures</p>	<p><b>IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Highway Safety Barriers</li> <li>• Highway Bridges</li> <li>• Highway Retaining Walls</li> <li>• Bridges General Inspections to be undertaken every 2 years.</li> <li>• Bridges Principal Inspections to be carried out generally every 6 years, but potential longer subject to agreement using a risk based approach.</li> <li>• Bridge Management System to be updated within 1 Month following inspections and works being completed.</li> <li>• PROW structures (Span &gt;7.5m)</li> </ul> <p><b>NOT IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Public Rights of Way Bridges (span less than 7.5m)</li> <li>• Herefordshire Council Amenity Bridges</li> <li>• Playgrounds</li> <li>• Non-retaining Walls</li> <li>• Buildings</li> <li>• Sculptures</li> <li>• Third party assets (other than safety inspections)</li> </ul>

Network Management	<p><b>IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Technical liaison with the Network Management Team in the consenting, planning and supervision of Abnormal Loads on the county’s highway network.</li> <li>• Limited support for network infringements</li> <li>• AIP Process as outlined in Appendices</li> <li>• Liaison with Building Control</li> <li>• Providing Technical review and Approval of Highway Structures in accordance with the AIP process, but funded by Developers</li> </ul> <p><b>NOT IN SCOPE</b></p> <ul style="list-style-type: none"> <li>• Unlimited support in dealing with network infringements</li> <li>• Support and technical advice for issues that are the responsibility of Building Control.</li> <li>• Unfunded Planning / Adoption Advice and support to HC Planning and adoption team. Assistance for the submission of AIP’s and review of AIPs and granting TAA.</li> <li>• Supporting Developers or other third parties with design expertise.</li> </ul>
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**RISK MANAGEMENT**

High level risks will be managed through the Partnership risk management process and listed on the partnership risk register.

	KEY RISK	CAUSE	CONSEQUENCE	MITIGATION
Strategic	Risk Based Approach	Risk based approach to managing the asset means that a large number of minor and medium risk issues remain	Network is vulnerable to extreme weather event.  Reactive rather than Preventative approach, reduces value for money.	Clear understanding of risk of each defect that is planned to be addressed so schemes can be prioritised against each other. Use approved HMP approach.
	Temporary/Permanent closure of Highways network due to declining budget for structures maintenance	Funding Constraint: Competing priorities with the contract and Council. Reduction of Grant Funding from central Government.	Reduced local economy, local dissatisfaction with service and accessibility  Low cost intervention maintenance options are unable	Early warning of budget constraints developed Impact assessment on key routes of bridge closures  Development of diversion routes for key routes

			to be utilised. Increasing maintenance cost in the future. Decline in bridge stock condition. Increased risk of failure on the network.	Asset Management approach implemented.  Early warning of specific issues as they become known.
	Structures susceptible to sudden failure	Defects can be hidden or deteriorate rapidly	Public exposed to harm Access to the network compromised	Identification through AMX of potential structures and development of Inspection and maintenance Plans
	Unable to undertake preventative maintenance	Funding Constraints	Deterioration of bridge stock. Failure of structures resulting in network closures. Cost to address defects increases due to early intervention not being possible	Prioritisation of limited budget Risk Register maintained and HC informed of risk in the network. Network Restrictions.
	Impact on the communities	Delay and comprised journeys	Public dissatisfaction Economic and social disruption	Early engagement Explanation of need Planning of network disruption and coordination of multiple closures Implementation and mitigation measures
	Network Infringements	Third Party's who damage the highway asset or put highway users at risk	HC incur costs while 'policing' third parties. Highway Asset damaged. Network users at risk	AIP process in place. Liaise with HC Highways Development Control. Early Warning Process Assist recovery where necessary

PART 2

ORGANISATION

STRUCTURE

The structures service will be delivered through the Design and Build section that encompasses Asset Management capabilities alongside our Highways and Drainage teams. Managing the structures service under an Asset Management Team Leader enforces the importance a whole life approach for the management and maintenance of bridges infrastructure that supports Herefordshire's local economy. This ensures that the delivery of the structures service is integrated to the delivery of other highways infrastructure.

The Structures Team will focus on the scope of services outlined in this document.

Once maintenance works have been identified, if the works are minor then the carrying out the works will then be passed to the Delivery Team. For major schemes that requires a more formal design to be developed then this will be undertaken by specialist consultants. Following the development of a design, the works will then be carried out through our project stage gate process by specialist subcontractors overseen by the project management team. Records of all works are provided back to Asset Management for asset records to then be updated by the responsible project manager or delivery team supervisor.

## ROLES AND RESPONSIBILITIES

The following table identifies the roles and responsibilities that support this service area:

Job Role	Responsibility
Asset Management Team Leader	To lead the Asset Management Team in the delivery of the team functions and requirements including maintenance of Herefordshire Council's Highway Structures assets. Development of systems and process to enable improved service and productivity, i.e. implementation of an Asset Management approach. Filling in for Senior Structures Engineer when he is on annual leave.
Senior Structures Engineer	Manages the compilation and monitoring of the annual structures maintenance programme and inspection regime. Assisting the Structures Inspector in carrying out principal structures inspections when required. Value manages the outputs from inspection reports to generate the following year's Annual Structures programme. Liaises with internal and external stakeholders regarding reactive and programmed works/incidents.  Acts on behalf of the Council in matters relating to highway structures. Reviews planning applications and adoptions. Work with HC to resolve other Highways Structure issues.
Structures Inspector	Carries out structures inspections (general and Principal) on Bridges, culverts and safety fencing and produces inspection reports utilising AMX. Advises and supervises maintenance works where appropriate. Assists the Senior Structures Engineer.
Delivery Team	Supervision of subcontractors and responsibility for the delivery of structures schemes or maintenance works undertaken by in-house gangs.
Stakeholder Team	The Stakeholder team will assist and support the Senior Structures Engineer with enquiries/complaints and public interface or Public relations issues and input events into CONFIRM.

**KEY DELIVERY INTERFACES**

	Who are the dependencies	What is the nature of the dependency
Public Realm BBLP Partnership	Network Manager	Understanding scheme timetables/programmes and arranging TTROs
	Delivery Team and Project Management Team	Communicating information to keep IWP updated and identify programme efficiencies. Coordinates with delivery team and structures manager. Works identified in this Annex are managed by this interface.
	NRSWA Team	Information regarding Public Utility works
	Customer Liaison Manager	Communication of road closures, advice on stakeholder engagement activities
	Public Rights of Way Team	Liaison in order to deliver a consistent and efficient structures service including knowledge sharing
	Abnormal Loads officer	<p>Communication of abnormal load movements, road closures, alternative routes, TM and works programme and advice on stakeholder engagement activities</p> <p>The structures team will provide technical support for the processing of abnormal load movements in the County, carrying out assessments as necessary, where structures are likely to</p>

		experience loads in excess of their known capacity.
	Operations Team	Winter maintenance operations
	Performance & Improvement Manager	Ongoing feedback/ review of service performance and monthly reporting
	Locality Teams	Coordination of works issues
	Countywide Amenity Teams	Coordination of works, utilisation of road space
Herefordshire Council	Local Members	Keeping them abreast of scheme development
	HC Transportation and Major Projects Teams	Carry out work in accordance with Service Orders and co-ordination with BB managed schemes
	HC Legal Services	Promotion of Temporary TROs and engagement in land acquisition/land entry
	HC Property Services	Liaison regarding property purchases/land entry.
	HC Environment – Conservation officer	Liaison regarding structures within conservation areas or listed structures
	HC Contact Centre	Provision of Scheme information for handling customer enquiries
	HC Waste Management	Coordinating activities to minimise impact on waste collection from scheme construction areas
	HC Planning Services	Coordination of activities for approval of retaining structures supporting the Highway AIP Process
	HC Highways Development Control	Coordination of activities for approval of retaining structures supporting the Highway. AIP Process.
	HC Building Control	Coordination of activities for unsafe and dangerous structures
	HC Tourism team	Programming of works involving tourist attractions / routes
External Organisations	Statutory Undertakers	Noticing and agreement of temporary works and diversions, location and information on services. Contribution to enforcement where necessary.
	Local Businesses (including schools and hospitals)/Chambers of Commerce/Transport Operators	Minimising impact on business activities

	Land Owners	Minimising impact on activities and use of land for schemes (temporary or permanent)
	Special interest groups (accessibility groups, cycling etc.),	Consultation on scheme proposals
	Neighbouring local authorities	Coordinating cross boundary works
	Bus Companies, Transport Operators	Consultation on temporary impact on operations
	Highways England and agents	Coordination with trunk road works in the County
	Police and other Emergency Services	Consultation on TRO's, abnormal routes, traffic management proposals
	Moiety Bridges	Cross boundary between authority areas
	Environment Agency	Liaison regarding programme and working above and in watercourses
	English Heritage, Historic England and other related groups.	Liaison regarding structures within conservation areas or listed structures Working on Listed Structures and Ancient Monuments - We will work with the relevant stakeholders (such as English Heritage) and client to ensure that traditional materials, methods and craftsmanship are used to maintain the structure's appearance and heritage.
	Internal Drainage Boards	Liaison regarding programme and working above, beside, and in watercourses

**FOUR YEAR PLAN**

**2019-2020 SERVICE REVIEW AND LESSONS LEARNT**

In the previous year, safety barrier inspections were included within the structures annex while works were delivered through the main roads annex with a dedicated PM overseeing the entire annual programme. This has produced real benefits and the approach will be adopted for future years.

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## INNOVATION AND CONTINUOUS IMPROVEMENT

Examples of innovation and continuous improvement will be delivered through:

**Collection of structures asset data** – We will continue to selectively collect structures asset data, as well as data for safety fencing and PROW structures (to be recorded as part of routine inspection/ maintenance duties by our teams). This will be enabled by the use of AMX on mobile tablet devices, which can be used in the field to capture data. Improving knowledge of all maintainable assets will enhance management and optimisation of annual budget allocations. We will also share asset data with the TAMP team to provide records of structural programmes and locations of structures.

**Asset Management Approach** – we will continue the implementation of AMX as the structures asset management analysis tool to enable future condition of the network to be established and optimise maintenance interventions to achieve the lowest whole life cost.

**Access to specialists throughout the Balfour Beatty Group** - we will provide the local team with access to our BBLP Technical Leadership Team and Communities of Practice. The latest innovation will be shared from elsewhere in the group.

**Replacement of Arch Structures** - When further maintenance or repair is no longer viable, replacement with a similar structural form may be desirable on aesthetic grounds, rather than the more utilitarian appearance of, say, a concrete box culvert. In such situations, we have considerable experience in the provision of alternative structures, and the pre-cast concrete 'flexi-arch' system. In both cases, the new arches are quick to erect, require minimal false-work or intrusion into the watercourse, and with brick or masonry spandrels, can replicate the original structural form.

**Use of new construction materials** – Consider the use of Fibre Reinforced polymers (FRP) for either strengthening existing structures (e.g. wrapping of vulnerable bridge supports to improve impact resistance), or the construction of lightweight bridge decks.

## FOUR YEAR PLAN

We will continue to develop the programme of forward works reviewing it on an annual basis and including changes that are identified from the General and Principle Inspections that are being carried out. This may also come from additional data that is collected on structures, safety fencing and PROW structures that is recorded as part of routine inspection/maintenance duties carried out by our teams. Currently the forward structures programmes' total is circa £11.3m. Full details of the forward programme have been included in Appendix D.

Improving knowledge of all maintainable assets will enhance management and optimisation of annual budget allocations in order to reduce the impacts of any works on the HC highway infrastructure operational to a minimum. This will also allow us to advise the client of additional funding requests that will be required for any major capital schemes.



Develop better 'timed' works programme so that works requiring low river levels are carried out mid-summer and others that are not seasonally dependent are planned around the 'seasonally-dependant' works with better consideration for network and environmental requirements.

The attached works programmes include an indicative four year delivery programme.

## APPENDICES

### APPENDIX A: POLICY & PROCESSES

The policy and processes that will be utilised in delivery this service are outlined in the TAMP, HM and Structures Lifecycle Plan.

### APPENDIX B: REFERENCE DOCUMENTS

- Highways Act 1980
- Highway Infrastructure Asset Management Guidance Document, HMEP
- Management of Highway Structures, UK Roads Liaison Group
- Herefordshire Council's Transport Asset Management Plan
- Maintenance Efficiency Programme Infrastructure Asset Management Guidance Documents
- Herefordshire Council's Structures Lifecycle Plan
- Herefordshire Council's Highway Maintenance Plan
- CIPFA latest guidelines

### APPENDIX C: DEFINITIONS

*Definitions relating to the annexe*

BBLP            Balfour Beatty Living Places

HC                Herefordshire Council

### APPENDIX D: PROGRAMME OF WORKS

### APPENDIX E: APPROVAL IN PRINCIPAL PROCESS



Technical Approval  
of Highway Structure

### APPENDIX F: ADDITIONAL SUPPORTING DOCUMENTS



ANNEX 14 - risk  
register.xlsx