

Hello

Assessment, Strengthening and other
Maintenance & Improvement to
Bridges & Other Highway Structures in
London



LONDON PACKAGE APPROACH –
GUIDANCE MANUAL

Borough Spending Plans
Dated – January 2019 Version 2

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1. INTRODUCTION

1.0 INTRODUCTION

- 1.1 The Purpose of this “Guidance Manual” is to aid London Boroughs in the preparation of their Interim Local Implementation Plans / Borough Spending Plans (ILIP / BSP) in respect of Assessment, Strengthening and Other Maintenance & Improvement of Bridges.
- 1.2 Guidance is also given on how the “London Package” for Bridges and Other Highway Structures will operate and provides details of the management reporting arrangements for the Borough LIP programmes.
- 1.3 Boroughs should also refer to the annual TfL LIP Guidance issued to Borough’s which their BSP contact has received from TfL enclosing details of the proposed baseline programme.
- 1.4 As part of the overall BSP, Boroughs are to submit bids for specific Borough works both through BridgeStation and the TfL Portal. The LoBEG Package Leader will then submit a comprehensive programme to be agreed and endorsed by the TfL budget holder for ‘package’ works with recommended expenditure allocations set out on a Borough by Borough basis.
- 1.5 With respect to Assessment, Strengthening, and Other Maintenance & Improvement works Boroughs are advised to include details of their local priorities to LoBEG.

2. OBJECTIVES

2.0 OBJECTIVES

2.1 LoBEG BRIDGE MANAGEMENT STRATEGY for LONDON

2.1.1 INTRODUCTION: -

The objectives of the Strategy are

- To repair/maintain highway structures to an acceptable standard,
- To eliminate the backlog in maintenance and achieve and maintain a steady-state for future years.
- To ensure fitness for purpose and adequate funding.

2.1.2 LoBEG provides through its Package Steering Committee, the Thames Crossings coordination group, Network Rail working parties, The LoBEG Asset Management Working Group and other appropriate forums to implement this Strategy. LoBEG has been successfully operating the 'package' approach for the Assessment, Strengthening and other Structural Maintenance of Bridges & Structures in London since 1997/98

2.1.3 To achieve the LoBEG strategy, it is necessary to determine the current position. A complete London wide inventory of structures and collection of inspection data to determine the backlog of maintenance and continuously updated from the results of annual inspections. All Boroughs must complete these tasks if the objectives of the Strategy are to be met.

2.1.4 The LoBEG Bridge Management Database (BridgeStation) provides the tool to achieve and manage this Strategy. The Database holds London wide data for all London Boroughs including a full inventory and the results of inspections, assessments and details of refurbishment works required. Financial management can also be carried out on the Database as bidding for funding, monitoring of funding reporting on monthly spends etc. has to be done on the Database.

2.1.5 Sufficient funding is the key to achieving this Strategy.

2.2 THE MAYOR'S TRANSPORT STRATEGY

2.2.1 TfL 'Transport Strategy' includes proposals for an 'A Balanced Transport Network'. These are detailed in the strategy document and contain ten key priorities.

2.2.2 In respect of Bridges and Other Highway Structures reference is made as follows:

*"supporting boroughs' local transport initiatives, including improved access to local town centres and regeneration areas, walking and cycling schemes, safer routes to schools, road safety improvements, **better maintenance of roads and bridges, and improved coordination of street works.**"*

2.2.3 Also reference is made to the backlog in maintenance:

*"It will take another generation to catch up fully on the under-investment of the last generation. There is no magic wand. The first step is to break through the logjam of missed investment opportunity **by overcoming the backlog of vital maintenance and renewal**,, and to make clear and decisive commitments in the longer term to take forward the necessary major transport infrastructure projects to expand long-term capacity and improve reliability and efficiency."*

2.2.4 One of the Core Principles contained in the Mayor's draft Transport Strategy has particular relevance to Bridges and Other Highway Structures:

" **Core Principles**

4A.6 *In developing the strategic priority for investment is to increase safety, reliability, capacity and comfort by bringing the existing system to a state of good repair. Secondly, there is a clear need for new infrastructure and services. Core principles that have shaped this balance are:*

Prioritising investment in asset maintenance

Long periods of inadequate investment in London's transport infrastructure have resulted in a maintenance backlog on the Underground, rail and road networks. Allowing transport assets to deteriorate is costly in the longer term; it can increase the risk of accidents and inevitably results in unreliable services and a poor environment. Dealing with the backlog in investment and bringing the existing infrastructure to a good state of repair is, therefore, a priority."

This 'Core Principle' is carried through into one of the Mayor's key proposals of the Transport Strategy for the short and medium-term for **"better maintenance of roads and bridges."**

2.2.5 The "Advice to London Local Authorities" sets out the six key elements that should be included within a Borough's overall ITP. (The aims below are under threat from the cut in financial support from Central Government.)

These are: -

- Reducing the number of killed and seriously injured on London's roads.
- Targeted reduction in pedestrian, cyclist, powered **two-wheeler** casualties.
- Increasing the number of bus passenger journeys.
- Improvement in the % of scheduled bus service operated.
- Reduction in congestion and traffic volumes within central London.
- Eliminating the backlog of road maintenance on the TLRN and borough principal roads.

2.2.6 Each ITP is assessed for its quality against a set of criteria that has been determined Nationally. However, for the future bid round a simplified set of criteria have been produced for London Boroughs.

2.2.7 The "Goals Achievement Matrix" proposes a method for Boroughs to set out their proposed work programmes against seven main goals that should be included in overall ITP programmes.

2.2.8 "Bridge Assessment Strengthening and Other Structural Maintenance" is included within the "Goals Achievement Matrix" under goal G.6 – To Maintain Existing Infrastructure. The objective is set out as O.17 – To Provide cost-effective Highway and Bridge infrastructure.

2.2.9 These Goals and Objectives for "Bridge Assessment, Strengthening and Other Structural Maintenance fit into the National framework under the heading of "Planning and Managing the Highways Network".

2.2.10 Boroughs are required to provide schemes in priority order for all categories in their ITP's. In respect of "Bridge Assessment, Strengthening and Other Structural Maintenance", the priorities will be determined London-wide is utilising the LoBEG Prioritisation System.

3. BACKGROUND TO THE INTRODUCTION OF THE LONDON PACKAGE

3.0 BACKGROUND TO THE INTRODUCTION OF THE LONDON PACKAGE

- 3.1 The London package was introduced due to the inflexibility of the transport supplementary (TSG) which initially funded work in respect of assessment strengthening and other structural maintenance on a closed basis with no interaction between boroughs allowing for movement of funding between boroughs to mitigate changes to individual scheme programmes. Bids steadily increased as the results of the assessment programme became available, and the amount of TSG support was generally sufficient to meet the need, but where underspends of allocated funding occurred the funding to other authorities could not be redistributed.
- 3.2 Following a meeting between the Government Office for London (GoL) and the London Technical Advisors Group (LoTAG, formerly ALBES) it was agreed that a package bid for Assessment, Strengthening and Other Structural Maintenance in London would be prepared and introduced from 1997/98.
- 3.3 LoBEG developed a prioritisation system as part of a strategy devised to provide a fair and objective basis for the allocation of available funding between the boroughs. Finance is given to those structures most at risk, on the most important routes. In 2000 the prioritisation system was amended to include structural maintenance.
- 3.4 Finance within London, for the Assessment, Strengthening and Other Structural Maintenance (OSM) and Improvement works since 1997/98 has been provided initially in the form of Supplementary Credit Approvals (SCA) and later a grant system following the advent of the GLA. Currently, the system is administered by LoBEG for TfL. It allows for movement of funds with TfL's approval and the repayment of expenses by Boroughs has been administered through the TfL Portal.

Objectives of the "London Package"

- 3.5 The main objective of the London Package Approach is **"to ensure that optimum use is made of available funding"**.

The Terms of Reference for the LoBEG Co-ordination Steering Committee are: -

- **To co-ordinate the works of assessing, strengthening and maintaining road-carrying structures in London by highway authorities to achieve a programme of optimum priority and to ensure minimum disruption to London's highway network and other transportation systems and Assets.**
- **In addition to ensuring optimum use is made of available funding.**

- 3.6 These Terms of Reference, which were endorsed by LoTAG, set out the main objectives and are linked to priorities.

All work must be prioritised to ensure that available funding is targeted to the most critical structures on the most important routes, taking into consideration overall coordination and the risk to both the structure and the public.

- 3.7 The LoBEG Bridge Prioritisation system was introduced to: -
 - i. Provide a consistent comparison of bridges
 - ii. Maximise benefits from available resources
 - iii. Provide a fair basis for the allocation of funding

- 3.8 The prioritisation system was developed initially for 'Strengthening' schemes only. And later it was extended to include 'Maintenance and Improvement/Upgrading' schemes. This 'unified' system was trailed during 2000-2001, but it has been restricted by TfL who wish to ensure that the majority of limited funding is targeted at strength assessment and where a structure is weak, introducing appropriate interim measures to protect that weak structure awaiting strengthening.

4. IDENTIFICATION OF STRUCTURES

4.0 IDENTIFICATION OF STRUCTURES

Subdivision of Structures

- 4.1 What the general public recognises as a structure will in many cases be a grouping of structures which for administrative and maintenance purposes need to be recorded as separate structures. The system adopted is similar to that used by the Department of the Environment, Transport and the Regions (DETR).
- 4.2 To avoid confusion the term “parent structure” will be applied to what the general public would recognise as a structure, the subdivided separate part being a “child structure”. A “structure” is generally considered as separate if it is structurally independent of the structures adjacent to it that collectively make up the parent structure.
- 4.3 To illustrate: a subway complex would be one “parent” structure but may be made up of several “structures”, the main subway box being one, others being approach ramp retaining walls and stairs. A bridge with wing wall continuous with its abutments would be considered as one structure, but a bridge in which the wing walls are freestanding retaining walls would be considered as five separate structures.
- 4.4 The exception to the rule is the river walls that are continuous masonry over long lengths, with no movement joints even at bridge abutments. The subdivision of the entire system of river walls is to be made using the old GLC numbers. Each parent structure will be divided into separate structures at features such as bridge abutments, regardless of the lack of structural independence.
- 4.5 Where a bridge changes ownership along with its length the parts that are in different ownership will be considered as separate structures. Where a bridge has been widened at some time in its life, and the two parts (transversely) are of different styles of construction, the two parts will be considered as separate structures.

Need to finish with a section on consistent inventory guidance...

Structure Numbering

- 4.6 The structure numbering convention adopted is as follows: -
- Each Borough is given an owner identification prefix from 01 to 33. This will form the first part of the reference number. This list appears at the end of this section.
- 4.7 A further letter applied before the parent structure number is used to identify the **type** of structure as follows:-

Bridges (except across the Thames)	-	B
Thames bridge	-	T
Subways		S
Retaining Walls	-	R
River Walls		RW
Pipe Subways	-	P
Gantries		G
Underpasses/Tunnels	-	X
Footbridges		F
Miscellaneous	-	M

- 4.8 The third part of the structure reference number is the owner reference, which is a two-digit code allocated from the options below: -

RT	Network Rail	LU	London Underground
BW	British Waterways Board	DL	Docklands Light Railway
BR	British Railway Property Board	LA	Local Authority

GL Greater London Authority OT Other

4.9 The final part of the structure reference number is the Borough's unique reference, *i.e.* RT123. This unique reference should always refer to the parent structure. Substructures are to be recorded by an oblique and a letter forming the last part of the unique reference number; *i.e.* RT 123/A2.

4.10 The structure numbering convention is as follows: -

- Parent structure number 32/LA/S/S1
- The prefix 32 is the owner identifier – the City of Westminster in this case.
- The letters LA mean that the Local Authority owns the structure.
- The letter S indicates that the structure is a subway.
- The letters S and number 1 form the local authority's unique reference.
- The substructures for this structure would be denoted as follows: -

32/LA/S/S1/1
32/LA/S/S1/2
32/LA/S/S1/3 etc.

BOROUGH REFERENCE NUMBERS

AUTHORITY	CODE NUMBER
Barking	01
Barnet	02
Bexley	03
Brent	04
Bromley	05
Camden	06
Croydon	07
Ealing	08
Enfield	09
Greenwich	10
Hackney	11
Hammersmith and Fulham	12
Haringey	13
Harrow	14
Havering	15
Hillingdon	16
Hounslow	17
Islington	18
Royal Kensington and Chelsea	19
Royal Kingston	20
Lambeth	21

Lewisham	22
Merton	23
Newham	24
Redbridge	25
Richmond	26
Southwark	27
Sutton	28
Tower Hamlets	29
Waltham Forest	30
Wandsworth	31
City of Westminster	32
Corporation of London	33
Transport for London (TfL/GLA)	34

5. ASSESSMENT

5.0 ASSESSMENT

- 5.1 All London Boroughs should already have prepared a list of bridges and structures requiring an assessment to BD 21/. This list should include those structures owned by the Transport Undertakers and other owners.
- 5.2 Although all structures should have been assessed by 31 December 1998, they must be prioritised in such a way that disruption to the highway network is minimised and that they are coordinated with other work. Each Borough must set out its own prioritised programme for the completion of all assessments.
- 5.3 Each Borough **must** provide a list of structures that they own together with those structures that have been assessed to date and those structures requiring assessment.

Note: -

Within the LoBEG database, each Borough is required to provide historical data in respect of those structures that were assessed before 1 April 2001. Also, Boroughs are required to provide programme dates and results for those structures being assessed during the current financial year. Information relating to all other structures requiring assessment needs to be provided in the Bid section of the Database and under the Assessment Results section as appropriate.

- 5.5 For the assessment of structures, a profile of expenditure is required on year by year basis for completion of all assessments.
- 5.6 **ALL** assessment work should follow the approach endorsed by LoBEG, which is as follows:

- | | |
|-----------------------|---|
| <u>Phase 1</u> | <u>Initial Assessment</u>
Principal Inspection, Analysis using simple methods. (This may include data gathering, preparation of drawings etc.) |
| <u>Phase 2</u> | <u>Detailed Assessment</u>
Analysis using complex methods, incorporating material testing, etc. |
| <u>Phase 3</u> | <u>(A) Risk Assessment and (B) Feasibility Study for Interim Measures</u>
To determine whether the structure can remain unrestricted for 6 months, 12 months, 24 months etc. pending implementation of either interim measures or strengthening.
The Risk Assessment must take into consideration the requirements of BA79/98. |
| <u>Phase 4</u> | <u>Feasibility study for Strengthening</u>
To determine the appropriate strengthening scheme and to produce cost estimates and forward implementation programmes. |

Note: -

This 4-Phase approach **MUST** be applied for **ALL** assessments, including Network Rail, LUL, etc. owned structures that support the public highway.

- 5.7 In certain circumstances, it may be prudent to combine Phases 1 and 2. For example, over Network Rail land, it would be prudent to take core samples, etc. during available possessions as it would be costly to return to take a few borehole cores.
- 5.8 A Risk Assessment **MUST** be undertaken before considering the implementation of Interim Measures.
- 5.9 The Feasibility Study for Interim Measures should include: -

1. An investigation of options for works required to ensure that the structure is protected from loads more than the assessed loading capacity. The emphasis should be upon public safety and ensuring traffic disruption is minimised.
2. A review of risks taking into consideration the potential delay in implementing strengthening.
3. Cost estimates including design and implementation.
4. An assessment of annual maintenance costs.
5. An assessment of any special inspection and other capital costs that are required.
6. An appropriate monitoring regime following the guidelines that are set out in BA79/98 "The management of sub-standard highway structures".

5.10 The Feasibility Study for Strengthening should include: -

1. An investigation of options for the works required for strengthening and works necessary to bring the structure up to the required standard, for its whole service life.
2. An overall strategy for implementation, i.e. Phasing, Traffic Management, availability of track possessions from Network Rail etc.
3. Cost estimates with financial profiles showing design and implementation. These estimates should be inclusive of statutory undertakers dimensions and all other costs.
4. A review of traffic delay costs and future maintenance that should be taken into account in determining the recommended options.
5. Provision of information required for the London wide prioritisation process, i.e., Completion of the Bridge Prioritisation proforma.

Note: -

For structures owned by Network Rail, LUL, BWB & BRPB, the Feasibility Studies for Interim Measures and Strengthening should take into consideration the results of the BE4 assessment.

5.11 The costs for Phases 1 to 4 are to be funded from Assessment funding. Boroughs are required to provide an estimate for **ALL FOUR PHASES**. However, it is recognised that many assessments will not proceed beyond Phase 1 or 2.

5.12 It is recommended that when appointing consultants to undertake Assessment Studies the following method of payment should be adopted: -

- Phase 1 - Lump Sum
- Phase 2 - Budget Fee
- Phase 3 - Budget Fee
- Phase 4 - Budget Fee

The consultant should not exceed the Budget Fees without prior approval from Contract Officers. It is advised that fixed fees be sought before the commencement of Phases 3 and 4.

5.13 For those structures that pass the requirements of BD21/97, it is prudent to calculate the HB rating for both Bending and Shear. This information is invaluable when

determining Abnormal Load movements. The cost for this work, which should be minimised, should be included under Assessment.

- 5.14 In respect of Network Rail and BRPB owned structures, and Boroughs **must** take into consideration the payment arrangements contained within the legal agreements with Network Rail. There have staged payment arrangements, and Boroughs **must** consider the timing of payments when providing financial profiles.

Sector Leaders should note that Previous Guidance notes for TPP/ITP submissions made a specific reference to footbridges. It must be noted that footbridges **do not** fall within the assessment and strengthening programme. No Monies will, therefore, be allocated to such structures following DETR advice. **However, the impact of Corvid Pandemic may result in the scope change to include footbridges for strength assessment and strengthening.**

LOAD TESTING

- 5.15 LoBEG supports the work of the National Steering Committee - Bridge Testing (NSC - BT) and considers that load testing should be used, where appropriate, as an adjunct to the assessment calculations in determining the load-bearing capacities of structures.
- 5.16 Where a particular London Borough considers that load testing is appropriate, a detailed submission should be made for funding, setting out costs versus potential benefit.
- 5.17 Members should take note of the Guidelines for Supplementary Load Testing” which were launched by the NSC -BT in 1998.
- 5.18 Funding for Load Testing will be considered and met from Assessment monies.

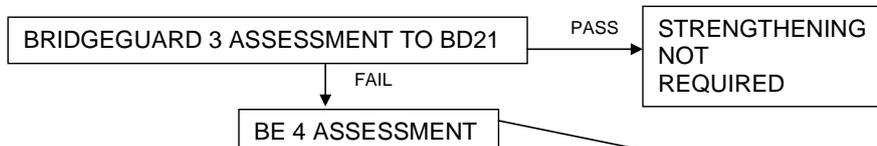
6. INTERIM MEASURES

6.0 INTERIM MEASURES

- 6.1 Interim Measures are an essential part of the overall assessment and strengthening programme and will be required for those structures “at-risk” pending the implementation of strengthening schemes. Interim measures must be justified each financial year
- 6.2 An Interim Measure may be considered as a low-cost alternative to a Strengthening Scheme and could be implemented as a permanent measure.
- 6.3 The need for an Interim Measure is not known until the results of an assessment are available. It is therefore intended to reserve a sum on an annual basis for the whole of London to be used as a contingency to meet the requirements as they arise.
- 6.4 Each Borough must provide a summary list of those structures that have interim measures in place together with a summary of past expenditure of such measures.
- 6.5 The cost of **routine** maintenance in respect of Interim Measures shall not be considered for financial support. However, costs for temporary traffic signals and major traffic diversions are a legitimate cost of Interim Measures.
- 6.6 Interim Measures may include monitoring and testing on a regular basis. The cost for such work should be included as an individual bid under Interim Measures.
- 6.7 Before Interim Measures are to be considered a Phase 3 Risk Assessment and Feasibility Study for Interim Measures **must** have been carried out to ascertain whether the structure can remain unrestricted for 6 months, 12 months, 24 months or until strengthening works are implemented.
- 6.8 The results of the Risk Assessment and Feasibility Study for Interim Measures must be entered into the LoBEG Database to enable an Interim Measures bid to be made. The following information **must** be provided: -
- Type of Interim Measure to be Implemented
 - Cost and Financial Profile (if over two or more financial years)
 - Any long-term costs (**not** maintenance)
- 6.9 A bid for Interim Measures can be made at any time, and it is not confined to the annual BSP framework of bidding in February each year.
- 6.10 For those structures owned by either Network Rail, LUL, BRPB or BWB it is noted that:-
- i. Where a structure fails BD21/ but passes BE4, then the cost of providing the Interim Measure rests with the Highway Authority.
 - ii. If a structure fails BE4, then the responsibility for the cost in providing the Interim Measure rests with the owner.

Please refer the short guide below: -

BRIDGEGUARD THREE PROGRAMME
DIAGRAMMATIC SUMMARY OF ALTERNATIVES AND COST
LIABILITIES FOR STRENGTHENING OF RAILTRACK HIGHWAY
BRIDGES WHICH FAIL ASSESSMENT TO BD 21†



FIRST CONSULTATION STAGE		SCENARIO	1.	2.	3.	4.	5.
		BRIDGE CAPACITY IN RELATION TO RAILTRACK OBLIGATION (1968 TRANSPORT ACT/BE4)	FAILS BE4	FAILS BE4	FAILS BE4	MEETS OR EXCEEDS BE4	MEETS OR EXCEEDS BE4
		LOCAL AUTHORITY REQUIREMENTS	WEIGHT RESTRICTION ACCEPTABLE TO LOCAL AUTHORITY	STRENGTHENING TO MEET RAILTRACK OBLIGATION ONLY	STRENGTHENING TO HIGHER CAPACITY THAN RAILTRACK OBLIGATION	NO STRENGTHENING WEIGHT LIMIT ACCEPTABLE	STRENGTHENING TO HIGHER CAPACITY THAN RAILTRACK OBLIGATION
		FUNDING WORKS AGREEMENT	RAILTRACK - NO WORKS AGREEMENT	RAILTRACK - NO WORKS AGREEMENT	JOINT - WORKS AGREEMENT 3 OR 4.	LOCAL AUTHORITY - NO WORKS AGREEMENT	LOCAL AUTHORITY - WORKS AGREEMENT 1 OR 2.
ALTERNATIVES TO BE CONSIDERED AT SECOND STAGE OF CONSULTATION							
SECOND CONSULTATION STAGE		ALTERNATIVES	a.	b.	c.	d.	
		COST SHARING	BRIDGE CAN BE STRENGTHENED USING THE SAME METHODOLOGY TO MEET BOTH THE RAILTRACK LOAD BEARING OBLIGATION AND LOCAL AUTHORITY LOAD BEARING ASPIRATIONS	BRIDGE MUST BE RECONSTRUCTED TO MEET BOTH RAILTRACK LOAD BEARING OBLIGATIONS AND LOCAL AUTHORITY LOAD BEARING ASPIRATIONS	BRIDGE CAN BE STRENGTHENED TO MEET RAILTRACK LOAD BEARING OBLIGATION BUT MUST BE RECONSTRUCTED TO MEET LOCAL AUTHORITY LOAD BEARING ASPIRATIONS	BETTERMENT IS REQUIRED TO MEET EITHER RAILTRACK OR LOCAL AUTHORITY ASPIRATIONS (i.e. IMPROVEMENTS FOR ROAD OR RAIL FACILITIES)	LOCAL AUTHORITY FUNDS FULL SCHEME
		OPTIONS FOR RAILTRACK MODEL WORKS AGREEMENT TO DEFINE FUTURE LIABILITIES	LOCAL AUTHORITY CONTRIBUTION TO BE FIXED PERCENTAGE OF FINAL SCHEME COST, BASED ON ASSESSED COST OF ADDITIONAL STRENGTHENING MATERIAL AND ANY EXTRA COSTS DUE TO EXTENDED CONTRACT DURATION	FOR SIMPLE REDECKING* LOCAL AUTHORITY CONTRIBUTE 5% FOR OTHER SCHEMES LOCAL AUTHORITY CONTRIBUTION TO BE FIXED PERCENTAGE OF TOTAL FINAL WORKS COST, TO BE AGREED FOR EACH SCHEME	LOCAL AUTHORITY CONTRIBUTION TO BE FIXED PERCENTAGE OF TOTAL FINAL WORKS COST, BASED ON MARGINAL COST DIFFERENCE BETWEEN FEASIBILITY ACCURACY ESTIMATES	AS FOR (c) BUT ACCURATE ASSESSMENT OF MARGINAL COSTS FOR EACH OPTION REQUIRED	1. LOCAL AUTHORITY TAKES OVER BRIDGE AND MAINTAINS IT. 2. RAILTRACK RETAINS OWNERSHIP AND MAINTAINS IT
		WORKS AGREEMENT OPTION 3.	LOCAL AUTHORITY TAKES OVER BRIDGE AND MAINTAINS IT	WORKS AGREEMENT OPTION 4.	RAILTRACK RETAIN OWNERSHIP AND MAINTAIN BRIDGE		

* SEE FULL DEFINITIONS OF 'REDECKING' CONTAINED IN THE AGREEMENT DOCUMENT
 † THIS DOCUMENT SUMMARISES THE 1998 AGREEMENT BETWEEN RAILTRACK AND THE CSS BRIDGES GROUP CONCERNING BRIDGE STRENGTHENING PROCESS FOLLOWING ASSESSMENT TO BD21.

7. STRENGTHENING

7.0 STRENGTHENING

- 7.1 Details are required of **all** individual strengthening schemes, regardless of their size, including those where works are in progress and those for structures not owned by the Boroughs.

For any individual scheme to be considered in the prioritisation for each respective year, all relevant Strengthening data must have been entered into the LoBEG database.

- 7.2 For Structures owned by Network Rail, the Phase 4-Feasibility Study should be prepared in consultation with Network Rail.

(Please see Section 10 in respect of Programming.)

- 7.3 For individual strengthening schemes the following information is to be provided: -

A. Expenditure profiles

In accordance with TfL guidance for (each financial year) and yearly after that broken down between Design and Implementation. To be provided to LoBEG

B. Programmes

Start and Finish date, for both Design and Implementation.

Note: -

Programmes should be REALISTIC and for those structures over rail must take into consideration the availability of possessions, etc.

- 7.4 Strengthening schemes that have been given financial support will continue to the following years as committed schemes.
- 7.5 All strengthening schemes submitted in the bids will be prioritised **by** the LoBEG Prioritisation system.
- 7.6 The prioritisation system will be applied to **ALL** structures supporting the public highway including those owned by Network Rail LUL, BWB and BRPB.
- 7.7 Each Borough **must** provide specific information to support **each** strengthening **bid**.
- 7.8 The required information is shown on the Bridgestation and is to be inputted into Bridgestation. You will be unable to submit a bid without providing data in the appropriate field boxes in Bridgestation.
- 7.9 The information provided with the bid will be used to determine the overall Bridge Priority Index for each particular structure. It will be used for comparison London-wide and will form the basis for the allocation of funding and notified to TfL as part of the Borough BSP submission.
- 7.10 NO ALLOCATION OF FUNDING CAN BE GIVEN UNLESS THE BRIDGE PRIORITISATION INFORMATION HAS BEEN PROVIDED.**
- 7.11 Each elected Sector Leader for each LoBEG area will be required to carry out audit checks on the information provided to them by the area members.

8. MAINTENANCE and UPGRADING / IMPROVEMENT WORKS

8.0 MAINTENANCE AND UPGRADING / IMPROVEMENTS

8.1 Over the last 15 years, very little funding has been provided for either Maintenance or Upgrading / Improving works. LoBEG considers that although there is significant justification for funding the Assessment and Strengthening Programme, there are Other Structural Maintenance and Non-Structural Maintenance schemes that are just as important if not more important than minor strengthening schemes. **(Presentably grant funding support is not available for OSM)**

8.2 To enable Boroughs to prioritise their programmes of work, the current Bridge Prioritisation System has therefore been extended to include the following: -

- Other Structural Maintenance
- Non-Structural Maintenance
- Improvement and Upgrading

8.3 A “unified” prioritisation system has been developed by LoBEG which provides a basis for comparing Strengthening, Maintenance, Improvement and Upgrading.

8.4 The background to the development of this unified prioritisation system together with the categorisation of Bridge Works as follows: -

8.5 Works are split into three broad categories: -

- Mandatory
- Routine
- Other

8.6 The following works are included under each heading: -

Mandatory

1. Principal, General and Special Inspection
2. Assessment Studies (including Feasibility Studies for Interim Measures & Strengthening).
3. Interim Measures (including Monitoring of substandard bridges)
4. Deck Waterproofing
5. Expansion Joint Replacement

Routine

1. Minor Concrete Repairs
2. Routine cleaning of drains, expansion joints, bearings etc.
3. Joint Sealant Replacement
4. Maintenance of Mechanical and Electrical System
5. Repairs following damage by third parties
6. Graffiti Removal

Other Works

1. Strengthening and Reinstatement
2. Planned Preventative - Structural
3. Planned Preventative – Non-Structural
4. Improvement and Upgrading

8.7 All those items listed under “Routine” are funded from **Revenue** and will **not** be considered for funding under the “London Bridge Package”.

8.8 Under “Mandatory” both Assessment Studies and Interim Measures are already funded through the existing London Package. Deck Waterproofing and Expansion Joint replacement are to be included in the unified prioritisation system.

8.9 All items under “Other Works” are included within the unified prioritisation system.

8.10 Specific supporting information is required to be provided with each scheme costing £50,000 or more, and this should be inputted into the LoBEG Database.

The information provided will enable a priority ranking to be determined. **Bids will not be considered without this supporting information.**

8.11 Individual bids may comprise either single or multiple categories of work. The categories of work are as follows: -

- Structural Maintenance & Other Strengthening
- Preventative Maintenance - Structural
- Non-Structural
- Upgrading & Improvements

Each category is sub-divided to identify specific types of work as follows: -

Structural Maintenance & Other Strengthening

- SS-2 Strengthening of piers vulnerable to impact loads
- SS-3 Parapet, crash barrier and safety fence strengthening
- SS-4 Repair of scouring damage and improvement of protection
- SS-5 Embankment strengthening
- SS-6 Replace brickwork
- SS-7 Repairs to substructures
- SS-8 Repairs to deck structural members
- SS-9 ASR in concrete
- SS-10 Other

Preventative Maintenance – Structural

- SP-1 Renewal of the drainage system
- SP-2 Repair/replace expansion joints
- SP-3 Replace or install deck waterproofing
- SP-4 Corrosion protection of metal members
- SP-5 Minor structural concrete repairs
- SP-6 Cathodic protection of concrete members
- SP-7 Silane impregnation of concrete members
- SP-8 Extraction of chlorides
- SP-9 Repoint brickwork/masonry
- SP-10 River training works and scour protection
- SP-11 Replace bearings
- SP-12 Maintaining BD21 road surface finish category
- SP-13 Signing for inadequate headroom
- SP-14 Other

Preventative Maintenance – Non-Structural

- NP-1 Renewal of mechanical and electrical equipment
- NP-2 Renewal of lighting
- NP-3 Cladding repairs
- NP-4 Other

Improvement Works

- IW-1 Traffic management arrangements for the bridge
- IW-2 Improving sight distance
- IW-3 Widening of footpaths on a bridge
- IW-4 Handrailing

- IW-5 Health and safety work
- IW-6 Increasing headroom
- IW-7 Strengthening for HB loading if a bridge passes 40 t ALL
- IW-8 Other

Please note the scope of works in the above applies to prioritisation of all items of work that Boroughs should need to consider when formulating their Borough Works Programmes, please see below the scope of works that may attract LIP grant funding.

9. PROGRAMMING

9.0 PROGRAMMING, The Package Approach

- 9.1 The key to the successful implementation of Assessment, Strengthening and Other Structural Maintenance Programme in London and for maximising the use of available funding is through Programming.
- 9.2 As stated in Section 7 above no bid for Strengthening will be considered unless: -
- A. A valid Strength Assessment has been completed, and Feasibility Study for Interim Measures and/or Strengthening has been carried out

and

 - B. That the required Bridge Prioritisation data has been provided.
- 9.5 The Feasibility study for Interim Measures becomes essential to determine what measures should be implemented pending strengthening, which may need to be implemented. It must, of course, be recognised that implementation of strengthening may need to wait some years and is dependent upon available funding.
- 9.6 In respect to Maintenance and Improvement works, the same philosophy applies.
- 9.7 In respect of Structures owned by Network Rail, it is essential that a co-ordinated approach to the programming works be undertaken.

10. SECTOR MANAGEMENT / MONITORING

10.0 SECTOR MANAGEMENT / MONITORING

- 10.1 The Management / Monitoring of the London Package Approach for Bridge Assessment, Strengthening and Other Structural Maintenance has been delegated by LoTAG to LoBEG by the setting up of a LoTAG Task Group.
- 10.2 The implementation of the Package Approach is to be undertaken to utilise the existing LoBEG Sector arrangements.
- 10.3 LoBEG Constitution sets out the current LoBEG arrangements with the London Package being implemented through the Co-ordination Steering Committee and Area Co-ordination Committees.
- 10.4 The Terms of Reference of the Co-ordination Steering Committee are:
- “To co-ordinate the work of assessing, strengthening and maintaining road carrying structures by London highway authorities to achieve a programme of optimum priority and to ensure minimum disruption to London’s highway network and other transportation systems. In addition to ensuring the optimum use is made of available funding.”**
- 10.5 The Terms of Reference for the Area Co-ordination Committees and main tasks to both the Area Steering Committees are set out in the LoBEG Constitution.
- 10.6 Monitoring of the London Package is carried out on a Sector basis by each Sector Leader reporting to the Package Leader.

Meetings

- 10.7 There will be six meetings of the LoBEG Steering Group during the financial year.
- 10.8 The Package Leader supported by the four Sector Leaders is required to provide bi-monthly reports to the Steering Committee summarising both progress and financial spend. This will enable up-to-date monitoring information to be passed to TfL via formal bi-monthly monitoring milestones.

Network Rail Working Party – currently LoBEG/Network Rail Working Group

- 10.9 The LoBEG / Network Rail Working Group was established in April 1998. The Terms of Reference are: -

To co-ordinate in partnership with Network Rail the effective management of the assessment and strengthening of structures owned by Network Rail that support the public highway.

11. LoBEG DATABASE (BridgeStation)

11.0 LoBEG DATABASE (BridgeStation)

11.1 LoBEG has developed a database (BridgeStation) for the Management and Monitoring of the London Package.

11.2 This Database was originally developed on the desktop-based system, which is now converted to a web-based system, BridgeStation and it is available at www.lobeg.co.uk.

11.3 The Database is also provided with an operation manual to assist in its use. Any problems should be addressed to FSW IT Solutions Ltd.

11.4 The Database provides an "Inventory" module where all Bridges and Other Highway Structures within Boroughs should be entered using the numbering convention set out in Section 4 of the Guidance Manual.

11.5 The Database also enables detailed results of Structural Assessments to the requirement of BD21/ and BE4 to be provided.

11.6 Bids for the following can be made: -

Assessment
Interim Measures
Strengthening
Other Maintenance
Other Schemes
Administration

Financial profiles and programme data must be provided for each "bid".

11.7 The Database enables Boroughs to view their bids during the various stages of their development for checking before they are submitted.

11.8 Appropriate fields have been provided to enable the necessary data that is required to support Strengthening, Maintenance and Upgrading bids to be provided.

11.9 The Database has also been developed to enable the Project Coordinator and the Package Leader to monitor expenditure and programmes and to recommend reallocate underspends to those Boroughs that require essential additional funding for newly approved schemes.

11.10 There are two specific modules of the Database: -

1. Borough Key Financials: Borough Version

One or more borough officers are granted access to borough key financial module. This module allows them to

- Make/Review/Modify a bid for the new scheme
- Review previously submitted bids and their status
- Review Package funded schemes and respective allocations
- Provide progress of package funded (Scheme Monitor) schemes on a bi-monthly/Ad hoc basis
- Standard reports for the Borough to query package funded schemes details for current/previous financial years.

2. Package Finance: Package Steering Committee Version

The package leader and package coordinator have access to an advance network level (London wide) financial review module called "Package Finance". This allows/enables them to

- Review submitted bids

- Approve/reject submitted bids
- Allocate funding to bids
- Review bi-monthly monitors submitted by boroughs
- Notify boroughs on a bimonthly basis their recommended allocations
- Record updates and notes from sector meetings regarding borough scheme progress
- strategic reports for the management and monitoring of the London wide Programme.
 - Bids Awaiting Allocation Report
 - Forecast Milestones Passed Report
 - Forecast Milestones Upcoming Report
 - Interim Measure Bids
 - Latest Monitoring VS Allocation Report
 - Monitoring VS Allocation Report
 - Structure History Report

BridgeStation (supported by FSW) also sends automated notification emails to borough officers with their status and value of the recommended allocations. In addition to that, TfL financial portal data is periodically imported in the package financial module to review/monitor Allocations/VoWD/Portal Claims.

Monitoring

- 11.11 Each Borough is required to provide an output file on a bi-monthly **basis** on the BridgeStation to their Sector Leader that provides the current status on all Assessments, Interim Measures, Strengthening and Other Structural Maintenance work. Sector Leaders are to provide to the Package committee with a summary file of collated data on a bi-monthly basis quarterly basis. This information will be used to provide Summary reports to TfL and to monitor the overall progress of the programme and spend.
- 11.12 A range of “output reports” that are produced from the Database follow on the next pages of the guidance manual. To enable reports, such as the “LoBEG Assessment Summary Report” to be produced, it is essential that Boroughs provided a comprehensive set of data within their Database.

Financial Approval for Implementation:

- 11.13 The final draft contract documents including risk register of strengthening schemes may be required to be submitted for a technical audit before they go out for tender, as appropriate to the value of the scheme and the complexity of the works to be done to check that there is nothing in the tender document that can lead to a claim.
- 11.14 Members must check with the Package Leader / Package Steering Committee that there is sufficient available funding in the budget based upon the value of the Engineers Estimate before inviting tenders.
- 11.15 Finally the boroughs again need to check with the Package Leader / Package Steering Committee that there is sufficient funding available before awarding the Contract and the Steering Committee will inform the TfL budget holder of LoBEG's recommendation for the scheme to proceed to implementation.

12. PRIORITISATION PROCESS FOR 2019/20 AND BEYOND

12.0 PRIORITISATION PROCESS SUMMARY

(Any changes to this process will be notified to members, and the Package Steering committee will update this guidance)

12.1 Assessments

12.1.1 Grant funding for this programme was initially available for schemes that would be completed by 31 December 1998. The Assessments programme nearing completion, and no funding will be available for reassessments on a periodic time cycle basis. Any new assessments will be considered on the particular circumstances of a specific scheme, i.e. the reason as for why a structure should be reassessed and the availability of funding within the current financial year.

12.2 Interim Measures (IM)

12.2.1 Bids for IM will be considered on a Health & safety priority basis and the availability of funding within the current financial year.

12.3 Structural Maintenance (OSM)

12.3.1 Not funded. However, it may be considered on a high priority structures (high route importance, high usage, good maintenance record, etc.) considering the current programme commitments, the availability of funding and further strengthening or IM schemes. Financial contribution might be secured, and it can be a partial or full financial contribution within the current financial year, provided that the borough agrees to a fixed contribution from grant funding.

12.4 Strengthening 20-21 Guidance update

12.4.1 Funding for strengthening projects will be considered only if the proposal is to strengthen the structure above its initial/original design load capacity to enable it to accommodate the current traffic conditions. The recent termination of support funding from central government to the GLA has meant that TfL has restricted scope of funding to the boroughs on those schemes that are located on the borough Principal road network and ideally support bus routes or on other borough roads which are on bus routes.

Alternatively strengthening schemes not on bus routes or an A-road may be considered for specific cases, for example being on the only access to a trading estate, waste transfer station or a hospital. Again, subject to available funding and other competing schemes within a programme a financial contribution from the Borough may be needed for a scheme to progress.

Where a scheme is of significant value, grant funding support will be restricted for the cost of strengthening and expense of painting and street lighting and other non-strengthening items including those related to routine maintenance will be the responsibility of the bridge owner, i.e. the Borough to fund.

Large 'ticket items' who's estimated value is many times the value of the annual assessment and strengthening annual budget should be considered out of scope from this Programme.

12.5 Bridge Condition Indicators (BCI)

12.5.1 The grant funding was utilised for the past twelve years (2002 to 2015) for PI's and GI's to gather the condition of structures on the Borough Principal Road Network (BPRN).

12.5.2 Due to TfL grant funding reductions, the BCI project was curtailed after 2016/17.