Intended for
Lower Sunbury Residents Association

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CYCLE/FOOTBRIDGE OVER THE THAMES AT SUNBURY

FEASIBILITY REPORT

CONTENTS

Revision History

Revision	Date	Purpose / Status	Document Ref.	Comments

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1. INTRODUCTION

I'm delighted to have been asked to introduce this Report - it provides your chance to have a view and an input into an exciting new piece of infrastructure which would enable those of us in Sunbury to cross the Thames on foot, or on a bike, without having to go to Walton or Hampton Court bridge, and to more easily enjoy the facilities and the tow-path (Thames Path National Trail) on the south side, and for those on the south side of the river, to enjoy the facilities and shops in Sunbury.

The proposal to construct a cycle/footbridge over the Thames connecting Lower Sunbury to the Thames Path National Trail is not new. Under the auspices of the Thames Overways Projects (TOPS), it was very much on the political agenda at the turn of the millennium. Sadly, however, whilst receiving widespread support both from local communities and special interest groups including Sustrans, the project was eventually shelved due to competing funding priorities. The Lower Sunbury Residents' Association (LOSRA) is nevertheless anxious to resuscitate the project which is also supported by both Spelthorne and Elmbridge Councils' local committees.

Since the original TOPS proposals, the combined population increase of Sunbury East and Halliford & Sunbury West wards is 10.1% (2011 census) but with no commensurate improvements in local infrastructure amenity. Furthermore, a total of 271 units comprising 811 additional bedrooms have been approved in recent planning applications with many more in prospect; all of which implies an even greater population increase before the next census is due in 2021.

Increasing traffic congestion, pollution and intrusion are major current concerns in this part of car-dominated Surrey.

The River Thames is one of our greatest assets, but it's also a barrier between places where people live, work and take their leisure. LOSRA believes that a car-free bridge would be of enormous benefit to a wide area both north and south of the River. It would mean safer and shorter non-polluting journeys to work, schools and recreation. In short the river is a beautiful linear park but it also prevents easy sharing of the excellent amenities that exist on either side of the waterway.

This is a first overview to inform everyone, not a definitive document upon which any final decisions will be made. The next stage will be a much more detailed proposal for us all to consider.

I'm sure you will, as I do, have a view on the criteria used and what other criteria, if any, need to be built into the next stage. However, the most important principle is to provide this knowledge and background for the public consultation stage, so that everyone who is interested can have a view.

I hope you enjoy reading this helpful feasibility report as much as I did. Well done to LOSRA and its sponsors : Crest Nicholson and London Irish RFC, together with a member's allocation from our local County Councillor. It will hopefully enable you to form a view as to which potential crossing site that, at this stage, you feel is most appropriate. Whichever site is ultimately chosen, I'm sure it will bring huge added benefits to residents on both sides of the Thames.

Being able to cross the River at Sunbury is a long held ambition for many of us in the locality - I hope it is yours too!

Alan Pascoe MBE

Alan Pascoe was a leading athlete of his era, winning Gold medals in the Commonwealth Games, European Championships and an Olympic Silver; and was Captain of the Great Britain team.

Subsequently, Alan became a successful businessman, credited with pioneering Sponsorship & Sports Marketing in this country. He was also the Vice Chairman of London's successful 2012 Olympic and Paralympic Bid.

Alan and his wife Della (herself a double Olympian and known for her Charity Garden Open days) have lived in Sunbury since 1977.

1.1. Background

1.1.1. The Lower Sunbury Residents' Association (LOSRA) wish to investigate the provision of a new cycle/pedestrian bridge connecting Lower Sunbury to the south bank of the Thames, giving pedestrian and cycle access to the Thames Path and on to Walton, Molesey and Hampton Court.

1.1.1. The key purpose of the cycle/footbridge is to provide a fully accessible crossing of the River Thames between Walton and Sunbury to meet both leisure and commuter use.

1.1.2. Preliminary work on bridge options for the area, carried out by Whitby and Bird (now Ramboll UK), was commissioned by TOPS in late 1999 .

1.1.3. Ramboll UK were approached in early 2014 to explore undertaking a high level feasibility study to explore this suggestion further.

1.2. Objectives of the Study

1.2.1. In mid-September 2014, Ramboll were commissioned by LOSRA to carry out an initial feasibility study to investigate the following:

- How would a bridge fit into the wider strategies for cycling, sustainable transport, etc., both at a local and national level?
- How would a bridge link into existing cycle and pedestrian routes?
- What needs would such a bridge satisfy in the context of local and national transport strategies?
- Identification and evaluation of possible sites.
- Would the proposed new bridge replace or complement any existing or proposed new infrastructure?
- Assessment of impact of pier location and span.
- Assessment of any constraints on visual appearance.
- Advice on statutory and consultative steps needed.
- Appraisal of funding opportunities.
- Appraisal of potential ownership and maintenance issues.
- Initial Consultation with the relevant statutory bodies and other relevant bodies.

1.2.2. This Feasibility Report is the final deliverable of this study.

2. TRANSPORT POLICY CONTEXT

2.1. Introduction

2.1.1. This section reviews the local transport policy context, in particular the Surrey Transport Plan and the local transport strategies for the two Local Planning Authorities affected by the proposed cycle/footbridge, Spelthorne and Elmbridge.

2.2. Surrey Transport Plan - Cycling Strategy – 2014-2026 (March 2014)

2.2.1. The Surrey Cycling Strategy forms part of the Surrey Transport Plan (LTP3) for the period from April 2011 to 2026. It sets out how cycling will be supported as an important element of our overall plans to tackle congestion, improve travel choice and journey time reliability, improve the health and well-being of our residents and reduce carbon emissions. It also considers how some of the wider issues and impacts of cycling can best be managed to reduce negative impacts and realise local benefit.

2.2.2. Its aim is more people in Surrey cycling, more safely.

2.2.3. Of particular relevance to the proposed cycle/footbridge are the following overarching objectives, Objective 2 and Objective 5:

> *"2. We will work in partnership to develop local cycling plans for each of Surrey's 11 districts and boroughs that are responsive to local needs and concerns.*
>
> *5. We will improve infrastructure for cycling by securing funding to develop high quality, joined up cycle routes, taking account of international best practice, utilising off road and quiet streets, and separating cyclists from motorised traffic on busy roads where feasible. We will focus our efforts on routes that connect where people live with where they work, shop and go to school and with rail and bus stations for longer journeys. We will actively bid for external funding to do this and integrate cycling considerations into our highways processes, programmes and initiatives."*

2.2.4. Objective 2 is further detailed in the document with a proposed approach to develop local cycling plans:

> *"Surrey Local Committees will oversee development of Local Cycling Plans that reflect local priorities and issues*
>
> *We will identify and deliver cycling improvements through local cycling plans for each of Surrey's 11 districts and boroughs, reflecting local priorities and circumstances. These will be jointly developed by Surrey's local committees, the county council, district, borough and parish councils and other partners including public health colleagues and cycling organisations. They will be developed in accordance with the objectives set out in this document, and will involve local consultation. The plans are likely to include both transport objectives, and sport, leisure and tourism objectives.*
>
> *Elements that could be considered as part of the plan include:*
>
> - *Priorities for new and improved cycling routes and paths, both on and off road.*
> - *Routes to town centres, stations, colleges, universities, health services and other key destinations.*
> - *Signage, particularly in areas of high numbers of cyclists.*
> - *Links with neighbouring authorities.*
>
> *The plans will be based on local information including casualty data, collisions on the journey to school, cycle surveys and counts, roads and junctions that are difficult for cyclists, and areas of deprivation, poor transport provision and poor health. We will carry out local consultation, consider appropriate targets, and seek funding for implementation.*
>
> *The transport infrastructure and supporting measures will, when agreed, be incorporated into the Local Transport Strategies being developed for each borough and district.*
>
> *There will be a phased approach to the development of the district and borough plans over the next two years."*

2.2.5. It is planned that each District or Borough in Surrey will oversee production of its own Local Cycling Plan by the end of 2015. They will provide the basis for funding bids to support investment in infrastructure.

2.2.6. It is aimed that the principles outlined below will be adopted where possible. Cycling routes in Surrey should (particularly in the case of the proposed cycle/footbridge):

- *"Be comfortable and well-maintained – Cycle paths should be built to a high standard with good quality of surface. Cycle paths should be clear from obstacles and debris and well-maintained.*
- *Be continuous – Transition onto and off the cycle route needs to be considered at both ends and at junctions. Cyclists going straight on should have priority at side roads where this can be safely accommodated. Cyclists should be able to cross major junctions safely and conveniently.*
- *Go where people want to go – Priority destinations could include: town centres, areas of employment, schools, colleges, universities, hospitals, health centres, GP surgeries, stations, public transport links, sports, leisure and tourism amenities, crossings over major roads, rail and waterways."*

2.2.7. Objective 5 focuses on funding – how funding can be secured is discussed in further detail in Section 11 of this report.

2.3. Surrey Transport Plan – Spelthorne and Elmbridge Local Transport Strategies and Forward Programmes (September 2014)

2.3.1. One aim of the Surrey Cycling Strategy is to develop Local Cycling Plans for each district and borough as appropriate. One will be incorporated into a future version of the Spelthorne and Elmbridge Local Transport Strategies and Forward Programmes.

2.3.2. Of particular relevance to the proposed cycle/footbridge, the Spelthorne Local Transport Strategy and Forward Programme has the following objective and delivery priorities:

> *"To promote travel by foot and bicycle within the borough:*
> - *Cycle ways – introducing new routes to make a continuous network which connects the areas of Spelthorne together, in particular Staines-Upon-Thames and Ashford.*
> - *Create more attractive, accessible and safe walkways throughout the Borough."*

2.3.3. As part of this, a 'Spelthorne Local Cycling Plan' will be developed. This will include a list of proposed cycling schemes for the borough. The main priorities will be to provide cycle routes that link neighbouring communities and communities to their local services.

2.3.4. Likewise, an 'Elmbridge Cycle Action Plan' will be developed. This will include a list of proposed cycling schemes for the borough. The main priorities will be to provide cycle routes that link neighbouring communities and communities to their local services.

2.3.5. In both cases, the plans will be a main driving force behind cycle improvements in Spelthorne and Elmbridge.

3. ENVIRONMENTAL POLICY CONTEXT

3.1. Introduction

3.1.1. This section reviews the local environment policy context, in particular the Spelthorne Core Strategy and the Elmbridge Core Strategy.

3.2. Spelthorne Core Strategy and Policies Development Plan Document (Adopted 26th February 2009)

3.2.1. The Spelthorne Core Strategy vision states that:

"By 2026 Spelthorne will have become a more sustainable place to live and work, the economic and social needs of all residents will be met and the environment will have been successfully protected and where possible enhanced."

3.2.2. The following environmental objectives are of particular relevance to the proposed cycle/footbridge and set out how the vision will be achieved:

"1. To protect and improve the quality of the environment, including improving the landscape, promoting biodiversity and safeguarding the Borough's cultural heritage.

3. To secure an improvement in the Borough's air quality.

4. To minimise the impact of noise on local communities and the environment.

5. To safeguard valuable urban open space and provide for open recreational uses.

11. To ensure new development is designed to a high standard appropriate to its setting and contributes to an improvement in the appearance of the environment.

13. To seek ways to reduce flooding and its associated risks to people and property including ensuring development does not increase the risk."

3.2.3. A development requirement arising from the Spatial Strategy, which relates to major place shaping issues and is specific to Sunbury, is the contribution of the River Thames to the character of the area.

3.2.4. In addition the Planning Policy Guidance (PPG2) also states explicitly the following objectives for the use of land in Green Belts which are of relevance to the project:

"(a) to provide opportunities for access to the open countryside for the urban population.

(c) to retain attractive landscapes, and enhance landscapes, near to where people live.

(e) to secure nature conservation interest."

3.2.5. Overall, the strategy for the local environment is to maintain and improve the quality of the environment, safeguarding existing character and assets and seeking improvements to areas of poor quality environment, including tackling poor air quality. It also aims to ensure new development makes a positive contribution to the environment and is sustainable.

3.3. Elmbridge Core Strategy (Adopted July 2011)

3.3.1. The Elmbridge strategy for the local environment is to maintain and improve the quality of the environment, safeguarding existing character and assets and seeking improvements to areas of poor quality environment, including tackling poor air quality. It also aims to ensure new development makes a positive contribution to the environment and is sustainable.

3.3.2. Its vision states the following:

"Through respecting our environment, yet encouraging innovation, Elmbridge will be an even better place to live for current and future generations, delivering benefits to a greater number of people, whilst reducing the impact of modern day living on the local and global environment."

3.3.3. The strategy notes the importance of the Green Belt and the River Thames. It describes the Green Belt as an environmental asset that is not only highly valued locally, but as an area that also has a much greater strategic significance. The River Thames is described as a strategic environmental asset, which forms the northern boundary of the Borough. Together with its high quality green and blue infrastructure, the area will continue to be preserved and enhanced in order to maintain a high quality environment, increase biodiversity, and respect local character and distinctiveness.

3.3.4. The following objectives are of particular relevance to the proposed cycle/footbridge:

"1 - To retain the high quality of life experienced by most Borough residents and share the benefits across all sections of the community, within an overall context of stabilising and ultimately reducing the Borough's ecological footprint.

2 – To protect the unique character of the Borough, and to enhance the high quality of the built, historic and natural environment.

5 – To promote sustainable lifestyles, and limit the use of natural resources, reducing the need to travel and maximising the use of renewable energy.

6 – To continue to protect the Green Belt, in order to prevent the coalescence of the Borough's towns and villages and retain the distinctiveness of our local communities.

7 – To take part in a co-ordinated approach to the management of the Borough's waterways in a way that protects and enhances their distinct role and character and their biodiversity value, improves water quality, and that minimises their potential to flood.

8 – To enhance the distinctiveness and diversity of the landscapes within the Green Belt, and to promote improvements to our network of strategic and local open land and green corridors, balancing the desire to increase access to the open countryside with the need to protect and enhance biodiversity interests.

17 – To support and develop the distinctive roles of our town and village centres, in order that they provide a strong focus for commercial and community development."

3.3.5. The spatial strategy therefore aims to accommodate all new development within the urban areas, within an overall framework that reflects the Borough's outstanding environmental and heritage assets which are so highly valued.

3.4. Audit of the Heritage Assets of the Non-Tidal River Thames

3.4.1. Within Spelthorne Borough, policy BE22 seeks to preserve and enhance character due to the conservation designations. In addition, the River Thames landscape is considered an Area of Special Character; therefore policy Ru5-7 seeks to protect its character and setting.

3.4.2. Within Elmbridge Borough, the River Thames landscape is a Thames Policy Area, with policies RTT1-13 aiming to protect and enhance the character, built environment and ecology, mitigate flood risk and improve public access to the riverside.

4. DESIGN CRITERIA FOR FOOTBRIDGES

4.1. Introduction

4.1.1. This study focuses on the viability of a number of sites as a potential site for a footbridge and not on their actual physical design. However it is worthwhile bearing in mind when considering each site the key design criteria that such infrastructure will need to satisfy.

4.2. British Standards

4.2.1. The British Standard BD 29/04 entitled 'Design Criteria for Footbridges' sets the geometric and user requirements which all footbridges should address.

4.2.2. The standard offers guidance only in order to allow the designer sufficient flexibility to develop designs that encourage greater use and appreciation by the public that will also meet the objectives of any overseeing organisation responsible for the bridge.

4.2.3. The need to meet these standards has been taken into account when considering all the potential bridge locations but is not a major factor in evaluating which might be the most appropriate site.

4.2.4. The key factors used in evaluating the potential scale, and therefore cost, of the options are the geometric standards set out in BD 29/04

4.3. Dimensional Standards

4.3.1. The clear width of any bridge, ramp or stairs should not be less than 2m but will likely be much greater dependent on usage by pedestrians, cyclists and potentially equestrians, if applicable.

4.3.2. Gradients shall generally be no steeper than 1 in 20.

4.3.3. Consideration of the mobility of likely users should be given due regard in the design of the bridge and any approach structures.

4.3.4. Bridges should generally be 'step-free' wherever possible, with lifts added where this is not feasible.

4.3.5. Where required, stairs shall comply with BS 5395 with treads of 300mm minimum and risers of 150mm maximum with guidance given for landings, number of risers in a flight and maximum number of successive flights.

4.4. Parapets

4.4.1. All bridge spans, ramps and stairs shall be provided with parapets conforming to the standards of the adopting body.

4.4.2. Handrails are required on both sides of stairs and ramps and anywhere with a gradient steeper than 1 in 20.

4.4.3. Handrails should be between 900mm and 1000mm high.

4.5. Provision for cyclists

4.5.1. Where a crossing is part of a pedestrian and cycle route consideration should be given to whether the two user groups should be segregated or use a 'shared surface'.

4.5.2. When segregated, either by a kerb, rail or simply a line or surface texture the total width of bridge deck may rise from the 2m minimum to 3.5m, 3.9m or 3m respectively.

4.5.3. On footbridges with provision for cycles the height of a parapet should be a minimum of 1.4m high.

5. SITE WALKTHROUGH

5.1. SITE LOCATIONS

5.1.1. A walkthrough of the prospective sites for the crossing was carried out on the morning of 1st October 2014.

5.1.2. Whilst the general area of study has been indicated by the client, the only viable sites and alignments had not been decided

5.1.3. The location plan below identifies the five potential sites, with a name given to each for the purpose of this study.

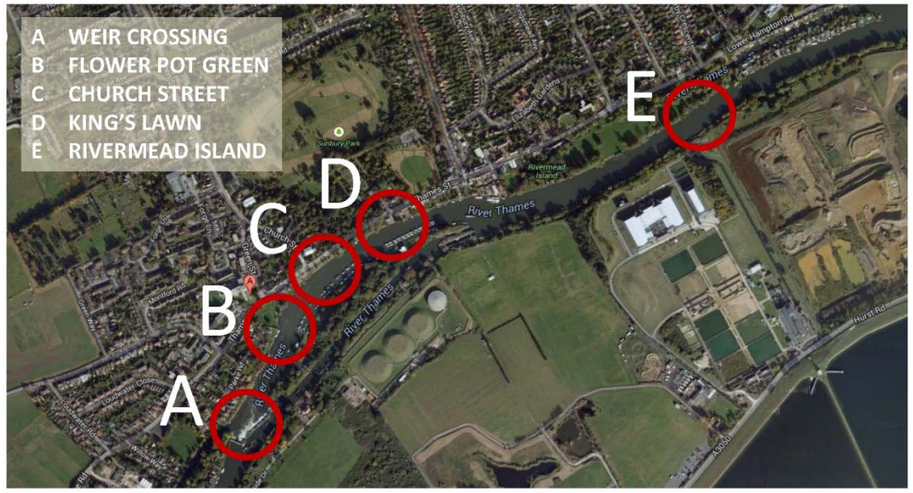

Fig 1: The five potential bridge locations

5.2. ALIGNMENTS

5.2.1. The following plans indicate the proposed alignment of each crossing.

5.2.2. Each diagram indicates the primary crossing in red with secondary or optional crossings shown in blue.

5.2.3. Numerical references relate to photographs taken to highlight the key features of each site, included as Appendix A.

5.3. Site A – Weir Crossing

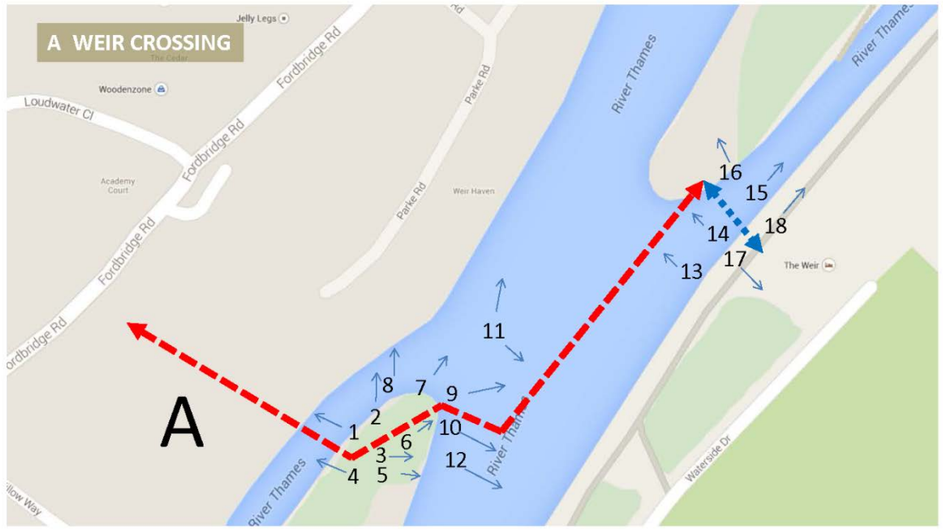

Fig 2: Multi-span bridge connecting Fordbridge Road to Waterside Drive, in the vicinity of 'The Weir' pub

5.4. Site B – Flower Pot Green

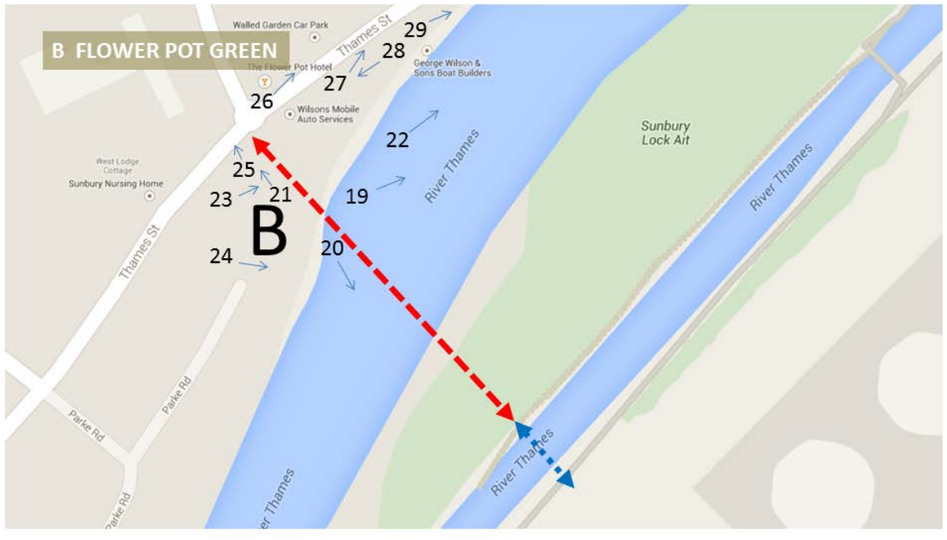

Fig 3: Long span bridge between Green Street/Thames Street junction and Sunbury Lock Ait

5.5. Site C – Church Street

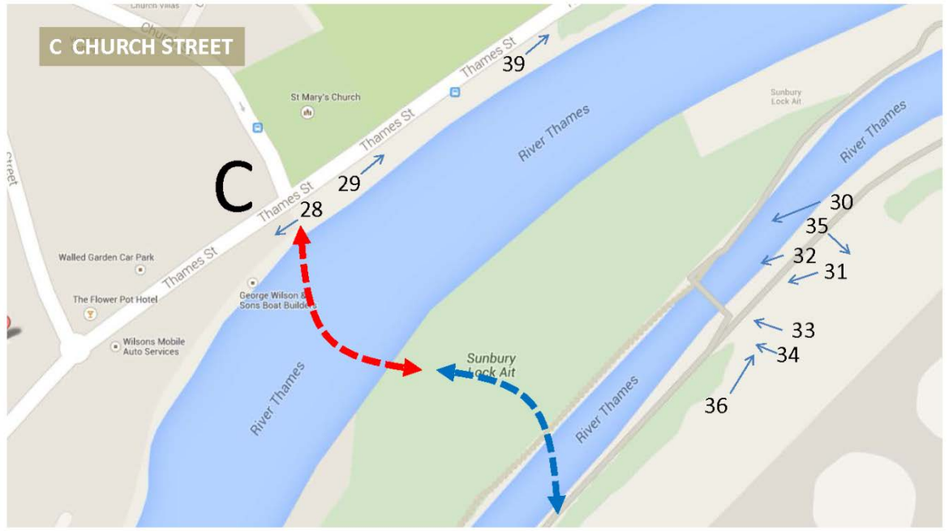

Fig 4: Bridge continuing Church Street south, over Sunbury Lock Ait

5.6. Site D – King's Lawn

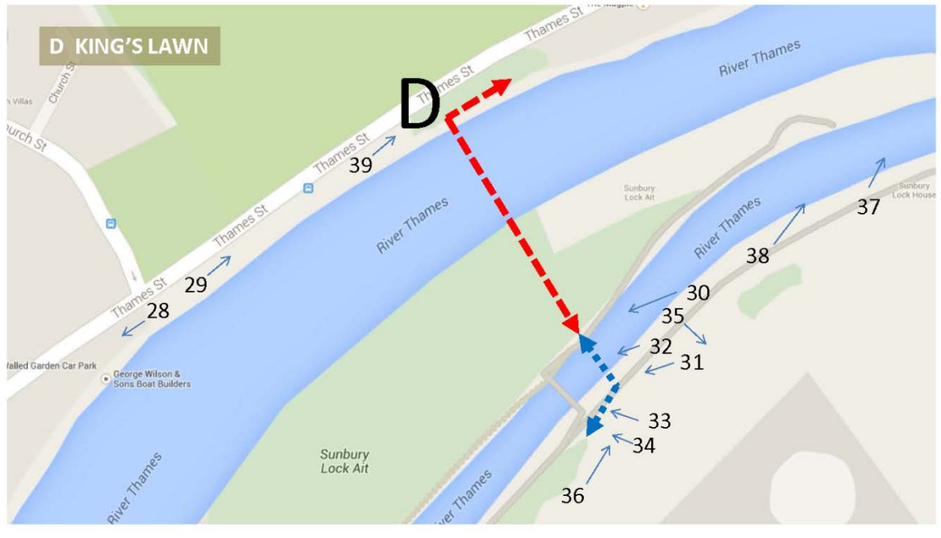

Fig 5: Bridge from South of Sunbury Park toward Sunbury Lock

5.7. Site E – Rivermead Island

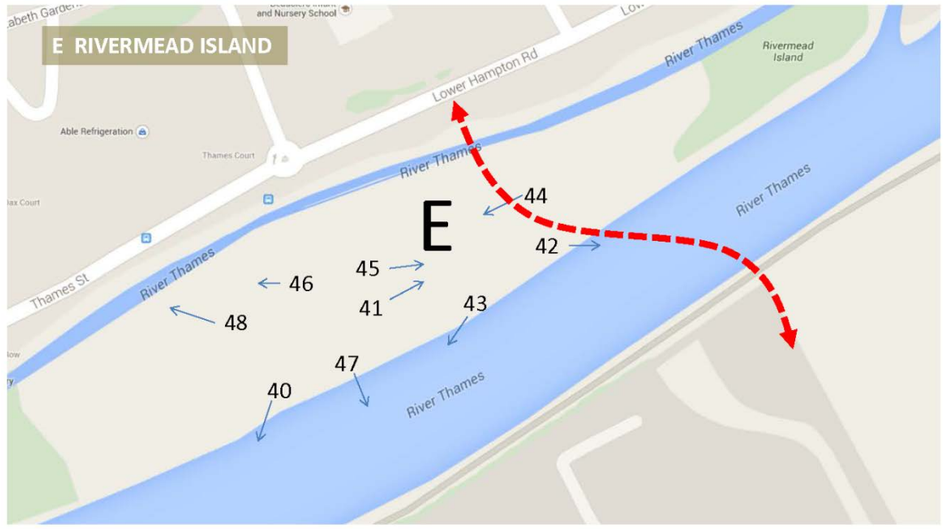

Fig 6: High level bridge linking Lower Hampton Road, across Rivermead Island and the Thames

6. IDENTIFICATION AND EVALUATION OF THE SITES

6.1. OVERVIEW OF LOWER SUNBURY AREA

6.1.1. Transport

6.1.1.1. Sunbury-on-Thames is a settlement on the River Thames, in North Surrey. It is mainly a residential area. There are some historic buildings and an undeveloped stretch of the River Thames which are covered by a conservation area designation.

6.1.1.2. Major routes converge at Sunbury Cross, namely the M3, A316, A308 and A244. The A308 and A244 are major routes to and from Hampton Court Bridge and Walton Bridge, which provide the main river crossings for traffic from Surrey to Heathrow Airport.

6.1.1.3. Sunbury-on-Thames is served by two rail stations, Sunbury and Kempton Park.

6.1.1.4. Sunbury rail station serves the Lower Sunbury area and is located approximately 1,800m to the north. It is served by South West trains which operate on the Shepperton branch line. During the Monday to Friday AM peak, four trains go to Waterloo via Twickenham and Richmond and three PM peak trains make the reverse journey. The basic off-peak service consists of two trains per hour to Waterloo via Kingston, Wimbledon and Clapham Junction and two trains per hour to Shepperton.

6.1.1.5. Three main, regular bus services available to Lower Sunbury are the 216 (between Kingston and Staines), the 235 (between Sunbury and North Brentford) and the 555 (between Walton and Heathrow Airport).

6.1.1.6. On the other side of the River Thames, Bus Service 564 terminates at the Elmbridge Xcel Leisure Complex and provides a connection to Whiteley Village via Walton-on-Thames.

6.1.1.7. A number of on-road cycle routes serve the Lower Sunbury area. Green Street which provides a direct connection between Sunbury rail station to the north and the River Thames is designated a ‘signed-only’ cycle route and connects with Thames Street along the river frontage. Thames Street is considered a ‘recommended’ cycle route which continues along Halliford Road to the west. To the east, Thames Street meets The Avenue and French Street which both run perpendicularly towards the north and are also designated ‘recommended’ cycle routes.

6.1.1.8. The road running parallel with the river (Lower Hampton Road – Thames Street – Fordbridge Road) has become frequented by cycle enthusiasts from a number of cycling clubs in southwest London.

6.1.1.9. The locations of the bus stops and the bus and cycle routes in the Lower Sunbury area are illustrated in Appendix B

6.2. SITE A – WEIR CROSSING

6.2.1. Site Plan

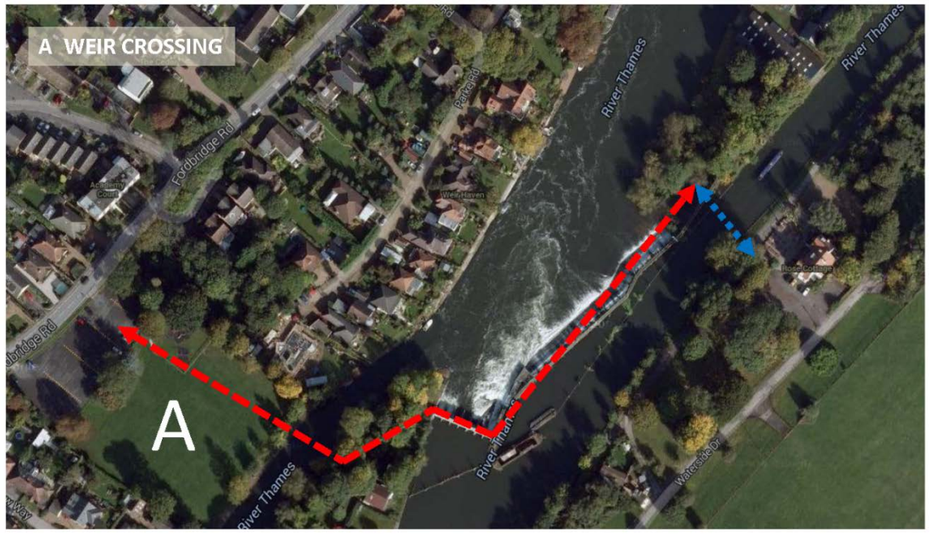

Fig 7: Alignment of Weir Crossing option

6.2.2. Bridge Design and Engineering

6.2.2.1. This proposed site exploits the potential for an upgraded weir structure, in addition to enhancements on both banks, and the opportunity for relatively low-lying bridge structures, to substantially increase public access and provide a dramatic crossing for cyclists and pedestrians.

6.2.2.2. The proximity to the existing car park is a significant benefit to this option.

6.2.2.3. All works would have to be closely integrated with enhancements of the weir and coordinated with the Environment Agency to allow for all future operation and maintenance of the weir structures.

6.2.2.4. The complexity of the site necessitates the crossing being constituted of a series of new interventions and modifications to existing structures, each with their own particular requirements:

6.2.2.4.1. At-grade path from Fordbridge Road across the car park and field. This area is a Protected Urban Open Space (Policy EN4 and Appendix 1 apply) and is within Flood Risk Areas Zones 2, 3, and 3b (1 in 1000, 100 and 20 year). Any intervention will require coordination with the existing car park amenity and the public playground. The grassland is at a low-level and any ramped approaches to the proposed crossing will have a significant visual and physical impact on the area. A path of 120m minimum will be required.

6.2.2.4.2. Low level crossing over the Creek, a back-stream of the Thames. The Creek is approximately 20m wide and boat access is restricted by the fixed vehicular and pedestrian bridges approximately 200m upstream of the site, owned by the Environment Agency. It is hoped that a new fixed crossing might be provided by a relatively low level bridge similar in height to these existing structures.

Fig 8: View of the Creek, looking north.

6.2.2.4.3. At-grade path across the northern tip of Wheatley's Ait, over Environment Agency property. This would be approximately 50m long. Security issues associated with proximity to private dwellings will be a key design criterion in this area.

6.2.2.4.4. Crossing over an upgraded and enhanced weir structure. Currently, a private access walkway crosses the lock and weir, owned and controlled by the Environment Agency, to allow for operation and maintenance of the locks and weir. The existing 180m long footbridge is approximately 2m wide and is unsuitable for either public pedestrian or cycle access.

Fig 9: Existing private footbridge structure crossing the weir.

6.2.2.4.5. New crossing over the lock-cut in the vicinity of The Weir pub/hotel and connection to the end of Waterside Drive. Currently the Donkey Bridge, approximately 400m downstream of the weir provides restricted access across the Thames but is unsuitable for universal access due to its steepness and narrow dimensions. A new bridge, indicated in blue above, would provide continuity and complete the crossing at Site A. It is possible that this might be a low-level swing or lifting bridge due to the inherent nature of its location on a locked waterway and the relatively small span (approximately 20m) and limited space available.

6.2.2.5. In total the proposed crossing would be between 350 and 400m long with approximately half this length being the upgraded weir structure itself. Overall this would constitute a major upgrade and enhancement of a well-established crossing of the Thames. It would provide a visually exciting and dramatic experience for the public.

6.2.2.6. Adaptation of the weir to provide a pedestrian and cyclist crossing will need to be reconciled with continued provision of access for routine operation and maintenance of the structure by the Environment Agency.

6.2.2.7. In terms of protecting sensitive riverside views of, and from, Lower Sunbury, the weir option offers the advantage that no elevated bridge deck would be required between the north bank of the Thames and Sunbury Lock Ait.

6.2.3. Transport

6.2.3.1. Site A has been reviewed from a transport perspective against a list of criteria, set out in Table 6.1 below.

Table 6.1: Site A Transport and Connectivity Assessment

Criterion	Site A – Weir Crossing
Desired Lines – Origin/Destination	Site A is closest to Walton-on-Thames but not on the desired line for pedestrians or cyclists as the Weir Crossing runs in a southwest-northeast direction, i.e. diagonally opposite to the desired line between Sunbury-on-Thames and Walton-on-Thames which lies upstream to the southwest.
Connections with the Cycle Network	Site A is not directly connected to any cycle route. The nearest recommended cycle route is along Thames Street and Halliford Road.
Connections with the Pedestrian Network	A cycle/footpath would be created to link the footway on Fordbridge Road with Site A, directly along the existing car park.
Connections with the Public Transport Network	The nearest bus stops are situated on Halliford Road, 400 to 500m from the access point on Forbridge Road. On the other side of the River Thames, Bus Service 564 terminates at the end of Waterside Drive, approximately 460m further up the shared cycle/footpath along the Thames, just outside of the Elmbridge Xcel Leisure Complex.
Interface with the Highway Network/Junctions/Crossings/Off-Street Parking Availability	Site A would be accessed from Fordbridge Road. The transition between road space and the cycle path (and vice-versa) should be made obvious to cyclists by means of clear signage and road markings. Site A would also be served by the Pay & Display car park accessed from Fordbridge Road and adjacent to the cycle/footpath that would lead to Site B from Fordbridge Road.

6.3. SITE B – FLOWER POT GREEN

6.3.1. Site plan

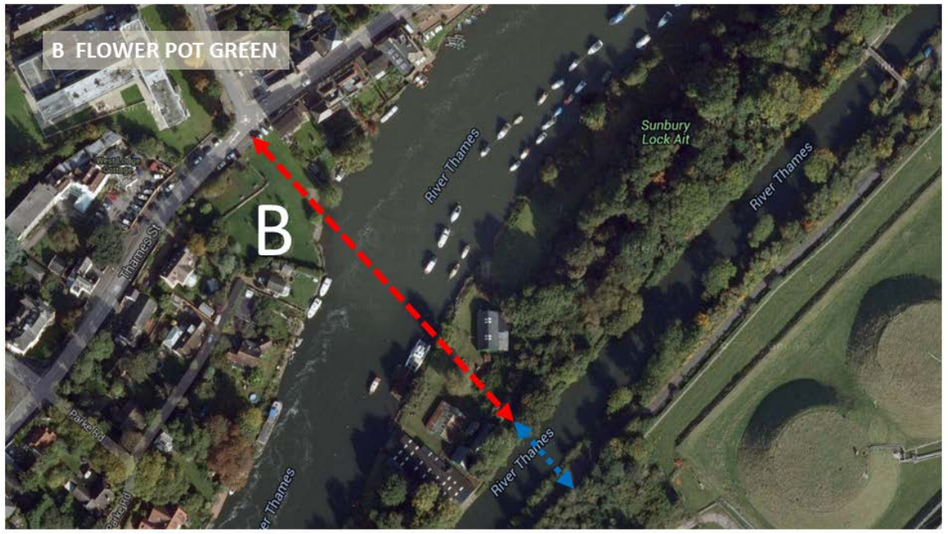

Fig 10: Alignment of Green Street crossing option

6.3.2. Bridge Design and Engineering

6.3.2.1. This indicative crossing location connects to the Green Street/Thames Street junction, due south from Sunbury Rail Station.

6.3.2.2. Green Street is one-way at this point serving only northbound traffic, southbound traffic being taken by Church Street approximately 100m to the east.

6.3.2.3. The route to the bridge would emerge from the mini-roundabout at the Green Street/Thames Street junction, which provides a natural raised vantage point in this area which might negate the need for lengthy ramps.

Fig 11: Flower Pot Green, looking north

6.3.2.4. From this elevated position the route continues over landscaped area in a south-easterly direction toward the northern bank of the Thames.

6.3.2.5. The Thames is relatively wide at this point, varying between 60 and 75m.

6.3.2.6. The Environment Agency has previously stipulated a recommended clearance of 5.92m above MSWL for at least 2/3 of the main channel, which equates to 40-50m.

6.3.2.7. The bridge would span the Thames to Sunbury Lock Ait where it would take one of two courses either continuing at high level across the Lock-cut, or descend to the southern bank of the Ait. From here the route could either cross the Lock-cut at low level, as described in Site A or connect with the existing cycle route running along the southern bank toward the Donkey Bridge, some 400m away. However, as mentioned above, the existing bridge's remote location and restrictive dimensions make this a much less satisfactory option.

6.3.2.8. A bridge at Site B would clearly be a highly visible structure and a landmark within this busy stretch of the Thames and a focus for the many residential properties and boating activities in the area.

6.3.2.9. A key advantage of this location, in terms of protecting sensitive views, particularly those from the river itself, is that it lies a significant distance (at least 120m) upstream of Grade II* listed St Mary the Virgin's church. As such a new bridge here would not obscure the familiar view of the church from downstream, but would be seen in combination with the church. The new structure would also represent a significant addition to upstream views of the river channel from King's Lawn. Adverse effects on downstream views of Lower Sunbury are reduced by the presence of the weir which not only obscures views from further upstream but also blocks the approach of river craft from which the view would be experienced.

Fig 12: View of Sunbury Lock and St Mary the Virgin's church, looking upstream (Watercolour by Arthur Gordon, 1892)

Fig 13: Looking East toward the Sunbury Lock Ait

6.3.2.10. With the nearby weir imposing a natural boundary upstream it is not unfeasible that sailing restrictions might be imposed to allow a lower, less imposing, bridge structure at this location. However, preserving access from downstream for large river-based construction plant, such as floating platforms, to facilitate maintenance and repair of the weir, may have implications for the design of the bridge.

6.3.2.11. In summary, this alignment offers great potential for a direct crossing of both channels of the Thames with either a high-level single bridge (approx. 150m span) or a low-level structure with one fixed span (approx. 80m) and an opening span of 20m.

6.3.3. Transport

6.3.3.1. Site B has been reviewed from a transport perspective against a list of criteria, set out in Table 6.2 below.

Table 6.2: Site B Transport and Connectivity Assessment

Criterion	Site B – Flower Pot Green
Desired Lines – Origin/Destination	Site B is on the desired line from the one-way, north-bound, stretch of Green Street which slopes gently from Sunbury rail station to the north towards the River Thames.
Connections with the Cycle Network	Site B is located in the direct continuation northbound of the cycle route running along Green street , but via Church Street southbound'
Connections with the Pedestrian Network	Site B is located in the direct continuation of Green Street which provides a natural pedestrian route from Sunbury train station to the Lower Sunbury area.
Connections with the Public Transport Network	The nearest bus stops are situated on Green Street, approximately 230 to 260m to the north and on Church Street (160m) and Thames Street (210m).
Interface with the Highway Network/Junctions/Crossings/Off-Street Parking Availability	Site B is accessed from Thames Street, off its junction with Green Street which is a mini-roundabout. The transition between road space and the cycle path (and vice-versa) should be made obvious to cyclists by means of clear signage and road markings. The cycle path linking Thames Street to the proposed cycle/footbridge should not be in the direct alignment with Green Street to reinforce the transition effect and minimise conflict with car traffic at the mini-roundabout. There is no car park in the immediate vicinity of Site B, although there is a car park accessed from Green Street approximately 300m to the north of the Green Street/Thames Street mini-roundabout.

6.4. SITE C – CHURCH STREET

6.4.1. Site Plan

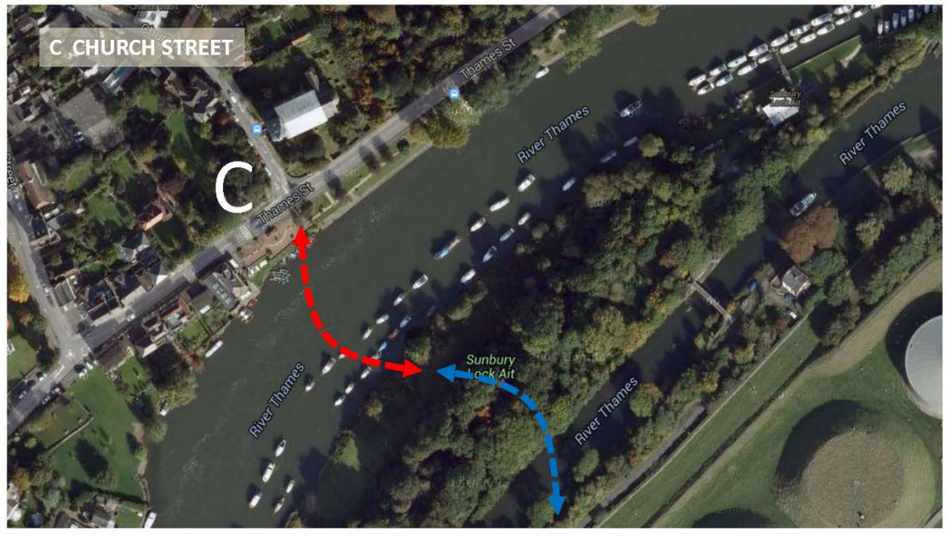

Fig 14: Alternative alignment to the western edge of the King's Lawn

6.4.2. Bridge Design and Engineering

6.4.2.1. Site C, approximately 100m east of Site B lies immediately south of the Church Street/Thames Street junction, immediately downstream (to the east) of Wilson's Boatyard, is a hard-landscaped area which steps down to the river's edge and leads to the river walk.

Fig 15: Looking southwest toward Sunbury Lock and Weir

6.4.2.1. This site does not have the physical benefits of Option D, being narrower and lower, but offers the opportunity to make a valuable connection with both the prevailing road network and key architectural landmarks of the area such as St Mary's Church, the Vicarage, George Wilson's Boatyard and the core of the riverside village environment within the Lower Sunbury Conservation Area.

6.4.2.2. Church Street is a short, one-way, southbound road; northbound traffic running along Green Street 100m to the west.

6.4.2.3. The construction of a pedestrian bridge along this stretch of the river could play a valuable role in activating the historic core by restoring the settlement's vital connection with its waterfront.

6.4.2.4. A new bridge at this location itself has the potential to form a hub of pedestrian activity in an area currently dominated by vehicular traffic movement along Thames Street, running parallel with the river. It would further consolidate the existing public amenity by connecting green spaces on the north side of the river (King's Lawn, St Mary's churchyard and Sunbury Walled Garden) with Sunbury Lock Ait and the Thames Path National Trail.

6.4.2.5. The potential setting issues in relation not only to heritage assets but also valued landscape amenities such as the existing river walk will raise the stakes in terms of the requisite aesthetic qualities of the bridge design as well as its integration into the dynamics of the area. Given the Grade II* listed status of St Mary the Virgin, proactive engagement of English Heritage is recommended to ensure that the effects of the bridge on the setting of the nearby church are considered acceptable.

6.4.2.6. This bridge alternative might need to be tied into a conservation area appraisal that holistically explores the unlocking of some of these ancient connections with the aid of other devices such as traffic calming and interpretation. Such a study would consider the effects by the proposed bridge on the conservation area and the various heritage assets contained within it and inform the design of both the structure itself and its approach.

6.4.2.7. Being slightly upstream of St Mary's, a bridge at this location would importantly not obscure historic views of the Grade II* listed church from downstream, although would be a significant addition to them and would therefore need to be assessed as viewed in combination with the church. In addition, with the proposed bridge landing opposite Church Street, views of the church from the weir and the upstream end of Sunbury Loch Ait could be partially preserved. Given the sensitivity of the views of the church from the river, it is suggested that a bridge at this location will be subject to exacting aesthetic design criteria.

6.4.2.8. The plan opposite indicates a potential alignment for a high-level crossing with approach structures integrated into a wider multi-level public space.

6.4.2.9. The bridge could descend from a high point at mid-river and continue to descend as a sinuous curve across Sunbury Lock Ait crossing the lock stream at low level as described above.

6.4.3. Transport

6.4.3.1. Site C has been reviewed from a transport perspective against a list of criteria, set out in Table 6.3 below.

Table 6.3: Site C Transport and Connectivity Assessment

Criterion	Site C – Church Street
Desired Lines – Origin/Destination	Site C is located in the direct continuation of Church Street a one-way, southbound continuation of Green Street, which slopes gently from Sunbury rail station to the north towards the River Thames.
Connections with the Cycle Network	Site C is located in the direct continuation northbound of the cycle route running along Green street , but via Church Street southbound'
Connections with the Pedestrian Network	Site C is located in the direct continuation of Church Street and Green Street which provide a natural pedestrian route from Sunbury train station to the Lower Sunbury area.
Connections with the Public Transport Network	The nearest bus stops are situated on Church Street (35m to the north), Thames Street (90m to the northeast) and Green Street (230 to 260m to the northwest).
Interface with the Highway Network/Junctions/Crossings/Off-Street Parking Availability	Site C is accessed from Thames Street, off its junction with Church Street which is a priority junction. The transition between road space and the cycle path (and vice-versa) should be made obvious to cyclists by means of clear signage and road markings. The cycle path linking Thames Street to the proposed cycle/footbridge should not be in the direct alignment with Church Street to reinforce the transition effect and minimise conflict with car traffic. There is no car park in the immediate vicinity of Site C, although there is a car park accessed from Green Street approximately 260m to the northwest of the Church Street/Thames Street priority junction and the Walled Garden Pay & Display car park accessed from Thames Street some 230m to the northeast, although it is understood that the latter is already heavily utilised.

6.5. SITE D – KING'S LAWN

6.5.1. Site plan

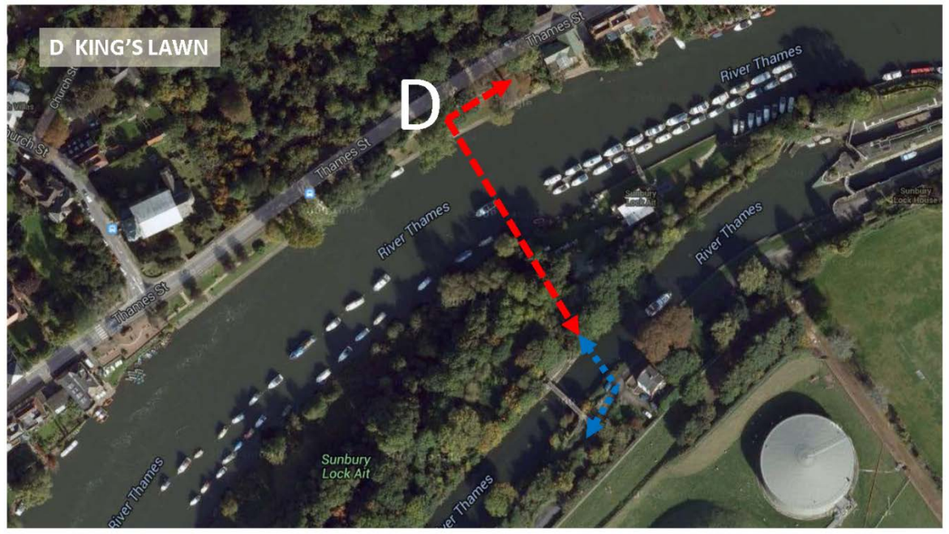

Fig 16: Alignment of King's Lawn crossing option

6.5.2. Bridge Design and Engineering

6.5.2.1. King's Lawn runs for 200m along the north bank of the Thames, to the south of Thames Street, St Mary's Church and Sunbury Park. This narrow landscaped strip varies in width between 12m and 20m and rises in height gently toward its northern end.

Fig 17: Riverfront paths to south of Sunbury Park

6.5.2.2. This option aims to take advantage of the increased height and more generous area at this downstream end, opposite the Walled Garden in Sunbury Park.

6.5.2.3. At this location, the Thames is approximately 60m wide and the Sunbury Lock Ait 30m and the potential crossing will align roughly with the Donkey Bridge.

Fig 18: Donkey Bridge, as it appears now.

6.5.2.4. A private ferry service currently operates from close to this site to the Middle Thames Yacht Club (MTYC) on the northern tip of the Ait.

6.5.2.5. Proximity to MTYC's boat moorings on the main channel of the Thames would necessitate the main span being at high level, requiring a large footprint on the Ait itself to allow the bridge to fall to grade before then crossing the Donkey Bridge.

6.5.2.6. A straight north-south alignment might avoid the MTYC altogether but increase the spans involved significantly.

6.5.2.7. Alternatively, a larger high level bridge might cross both channels, replacing, or amending, the Donkey Bridge, only touching on the Ait to provide structural supports and ramped access to maintain linkages to the existing cycle route and accommodation on the Ait.

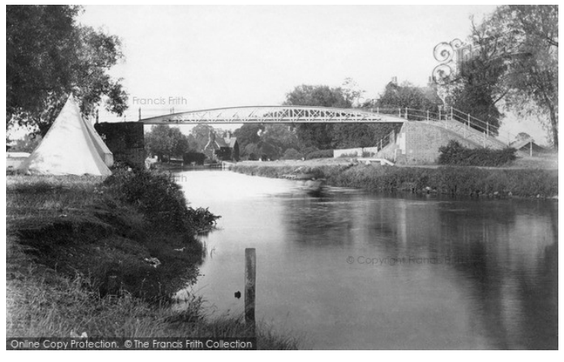

Fig 19: Donkey Bridge photographed in 1890.

6.5.2.8. Whilst this site offers the physical benefits described above, and potentially advantageous links with King's Lawn, Orchard Meadow, the Walled Garden, and Sunbury Park to the north, there are issues with lack of connectivity on the south bank of the Thames, and disconnection from the 'desire-line' between Walton and the built-up core of Sunbury to the west.

6.5.2.9. Proximity to the MTYC is also unavoidable and it is understood that reservations may be expressed were firm proposals to be developed for this

alignment, particularly as it is understood that MTYC are seeking to extend their moorings upstream, in the vicinity of this bridge option.

6.5.2.10. A key disadvantage of this option is that a new bridge at this location would obscure historic views of Grade II* listed St Mary the Virgin church from downstream.

6.5.3. Transport

6.5.3.1. Site D has been reviewed from a transport perspective against a list of criteria, set out in Table 6.4 below.

Table 6.4: Site D Transport and Connectivity Assessment

Criterion	Site D – King's Lawn
Desired Lines – Origin/Destination	Site D is located roughly halfway between the junctions of Thames Street with Green Street to the southwest and The Avenue to the northeast. Both provide north-south connections across Sunbury with Sunbury and Kempton Park rail stations, respectively.
Connections with the Cycle Network	Site D is directly connected to the recommended cycle route that runs along Thames Street. Thames Street is further linked to Halliford Road and The Avenue, which are recommended cycle routes, as well as to Green Street which is a signed-only cycle route.
Connections with the Pedestrian Network	Site D is connected to the footways along Thames Street and the riverside walk on King's Lawn, the central river frontage in Sunbury.
Connections with the Public Transport Network	The nearest bus stops are situated on Thames Street, approximately 110 to 150m to the east-northeast and 120m to the west-southwest, as well as on Church Street, about 250m to the west-southwest.
Interface with the Highway Network/Junctions/Crossings/Off-Street Parking Availability	Site D is accessed from Thames Street. The transition between road space and the cycle path (and vice-versa) should be made obvious to cyclists by means of clear signage and road markings. Site D would be served by the Walled Garden Pay & Display car park, located across Thames Street. The Orchard Meadow car park, accessed from The Avenue, is another alternative, and is situated approximately 480m away on foot from Site D. However, it is understood that both car parks are already heavily utilised.

6.6. SITE E - RIVERMEAD ISLAND

6.6.1. Site Plan

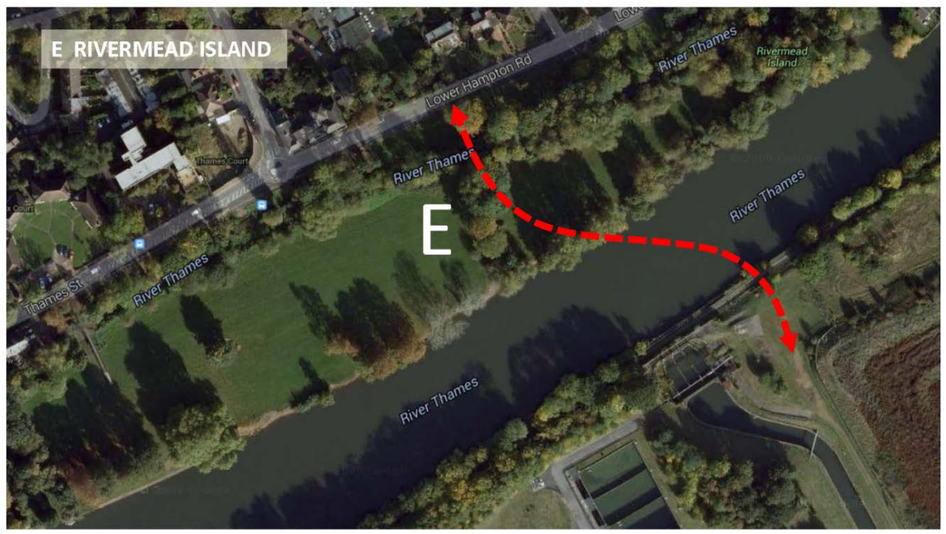

Fig 20: Alignment of Rivermead Island crossing option

6.6.2. Bridge Design and Engineering

6.6.2.1. Rivermead Island is an island in the River Thames on the reach above Molesey Lock. It is an unpopulated large open area of grassland and mature trees. It is connected to Thames Street by a footbridge with vehicular access only possible via a ford of the narrow stream separating it from the land.

6.6.2.2. The benefits of a crossing in this vicinity are its position in a relatively narrow and quiet stretch of the Thames and open spaces on each bank.

6.6.2.3. A short span low level bridge from Lower Hampton Street across the Thames stream will first be required to provide access to the Island itself. This would be at a similar height to the existing footbridge to the west but of more generous proportions.

6.6.2.4. The open field to the western end of the island, formerly the site of an open-air public swimming pool, is the focus for a fair and activities associated with the Sunbury Amateur Regatta every August. For this reason, it is felt to be unsuitable for siting the substantial ramp and stair approach structures required for a Thames crossing in this area.

6.6.2.5. To the eastern end is an open green area, formerly a separate island in its own right called ‘Swan’s Rest Island’, the channel between the two islands being blocked long ago. This area is more densely populated with trees, and provides a more suitable location for the springing point for the bridge.

6.6.2.6. In developing this bridge option it may be advantageous to reintroduce the channel and develop ‘Swan’s Rest Island’ anew with the bridge and approach structures as its focus. Access and circulation between the islands could be controlled by judicious location of simple bridges or culverts.

Fig 21: Extract from Ordnance Survey map indicating ‘Swan’s Rest Island’ and approximate location of bridge landing point.

6.6.2.7. Approach ramps to achieve the clearance required for the span over the Thames can easily be accommodated in the generous open space afforded by the island. Consideration should be given to integrating the ramps within a coherent landscaping proposal for the surrounding areas rather than impose a large structure within this sensitive site

Fig 22: View from Rivermead Island towards proposed crossing point.

6.6.2.8. The primary bridge structure over the Thames will need to span a minimum 50m at this point on the Thames but in reality will be considerably more to avoid mature trees to the north bank and to cross the river wall and existing cycle route to the south.

6.6.2.9. The raised embankment to the south of the Thames reduces the need for excessive ramped structures in this area whilst providing a raised vantage point affording elevated views along the river.

6.6.2.10. A curved alignment, as shown above, may be beneficial to achieve a softer, fluid form appropriate for the more rural nature of the surroundings. This would also allow the bridge to avoid the existing water intakes immediately to the south.

6.6.2.11. There is sufficient space alongside the riverside walkway to land the bridge and descend to grade. The route would then continue toward Hurst Road (A3050), 500m to the south. The most obvious location for this route would be the existing private roadway running west of Sunbury Court Island alongside the water channel in this area.

6.6.2.12. It should be noted that there are plans mooted to locate a Skiff Club Boathouse on Swan's Rest Island which may either influence the location or put into question the general viability of this alternative.

6.6.2.13. However, there must be concerns raised by the site's detachment from the historic core and population centre of lower Sunbury and particularly from the main pedestrian/cycle desire line approximately 750m to the west.

6.6.3. Transport

6.6.3.1. Site E has been reviewed from a transport perspective against a list of criteria, set out in Table 6.5 below.

Table 6.5: Site E Transport and Connectivity Assessment

Criterion	Site E – Rivermead Island
Desired Lines – Origin/Destination	Site E is not located on desired lines from Sunbury-on-Thames and is the furthest site from Walton-on-Thames.
Connections with the Cycle Network	Site E is directly connected to the recommended cycle route that runs along Thames Street/Lower Hampton Road. Thames Street is further linked to French Street and The Avenue, which are recommended cycle routes, as well as to Green Street which is a signed-only cycle route.
Connections with the Pedestrian Network	A cycle/footpath would be created to link the footway on Lower Hampton Road with Site E, directly across Rivermead Island.
Connections with the Public Transport Network	The nearest bus stops are situated on Thames Street/Lower Hampton Road, approximately 130 to 180m to the east-northeast and 140m to 200m to the west-southwest.
Interface with the Highway Network/Junctions/Crossings/Off-Street Parking Availability	Site E is accessed from Thames Street. The transition between road space and the cycle path (and vice-versa) should be made obvious to cyclists by means of clear signage and road markings. There is no car park in the immediate vicinity of Site E, however there is a Pay & Display car park off Thames Street, between its junctions with The Avenue and French Street, about 300m from Site E.

7. ENVIRONMENTAL IDENTIFICATION AND EVALUATION OF THE SITES

7.1. OVERVIEW OF LOWER SUNBURY AREA

7.1.1. The Lower Sunbury area, as a settlement that lies on the River Thames, contains a number of environmental designations and is therefore environmentally constrained. This is illustrated in Appendix C.

7.1.2. The study area is within the Spelthorne Air Quality Management Area (AQMA) designated for exceedances in nitrogen dioxide, although is not within any of the Elmbridge AQMAs. In addition, based upon the London Noise Map, the area surrounding the Thames is likely to be in Noise Exposure Category (NEC) B. This advises that noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise. There are residential properties and schools located within the area which would be considered sensitive receptors to both air quality and noise.

7.1.3. To the north of the study area it is mainly residential, although there are a number of open spaces, such as Sunbury Park and Rivermead Island which include scrubland and trees, while to the south it is mainly open space. The study area is mainly within the Green Belt, and also partially within the Spelthorne Borough River Thames Site for Nature Conservation Importance (SINC). Selection of the entire length of the River Thames through Spelthorne as a SINC is supported by English Nature and the Environment Agency (EA) who have confirmed that the Thames falls within the top 10% of UK waterways on the grounds of numbers of macroinvertebrate species present. The fringing habitats provide a corridor for species migration and act as a buffer zone to protect the riverine environment. The Thames provides an important highway for migratory fish as well as an important corridor for migratory birds.

7.1.4. The River Thames area is within Flood Zone 3. This area could be flooded by a flood that has a 0.5% (1 in 200) or greater chance of happening each year; or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

7.1.5. To the north of the study area there is one historic landfill, known as Vicarage Farm. To the south there are two historic landfills, Land Adjoining Leisure Centre and Hurst Road, and one authorised landfill, Apps Court Farm.

7.1.6. The Lower Sunbury Conservation Area and an area of High Archaeological Potential is located to the north of the river. There are 54 listed buildings in the vicinity of the study area; all Grade II except for Church of the St Mary the Virgin and Sunbury Court which are both Grade II* (refer to Appendix D and Appendix E). In addition, the Donkey Bridge which crosses the River Thames has the potential to be considered a heritage asset.

7.2. SITES

7.2.1. The following environmental aspects have been reviewed for each potential site:

- Air Quality;
- Noise;
- Ecology;
- Flood Risk;
- Land Quality;
- Waste;
- Archaeology and Cultural Heritage; and
- Townscape and Visual.

7.2.2. Table 7.1 sets out the potential environmental impacts of each potential site.

Table 7.1: Potential Environmental Impacts of the Sites

Environmental Aspect	All Sites
Air Quality	All sites are either partially within or adjacent to the Spelthorne AQMA. During construction there is the potential for dust to be created on site which could cause nuisance to buildings and site users in the vicinity.
Noise	All sites are likely to be in NEC B. There is the potential for short term noise impacts during construction works. Operational use may also introduce more noise to the area around the sites.
Ecology	All sites are either within or partially within the Green Belt and the Spelthorne Borough River Thames SINC. If vegetation clearance is required, the proposals may result in the destruction of an area of habitat which may, or may not, support protected species. The construction works may temporarily disturb species within the area of the sites.
Flood Risk	All sites are within Flood Zone 3. Any structures within Flood Zone 3 have the potential to impact on flood risk.
Land Quality	All sites are located in close proximity to historic and authorised landfill sites. The impact of the proposals on land quality and of land quality on the proposals will need to be determined by further assessment.
Waste	There is potential for waste generation during construction.
Archaeology and Cultural Heritage	Sites B and C are located in close proximity to an area of High Archaeological Potential, and the Lower Sunbury Conservation Area. In addition, the Donkey Bridge (in particular its abutments and cobbled ramps), crossing the lock cut, has potential value as a heritage asset and this would need to be considered if any alterations are proposed to the structure.
Townscape and Visual	There is potential for construction to generate short term adverse impacts. A new bridge also has the potential to impact on the character of the area and local views, including key historic views of Grade II* listed St Mary the Virgin's church from downstream.

7.2.3. Table 7.2 sets out the initial recommended environmental mitigation for each potential site.

Table 7.2: Initial Recommended Environmental Mitigation of the Sites

Environmental Aspect	All Sites
Air Quality	Not applicable
Noise	Not applicable
Ecology	A Phase 1 Habitat Survey and ecology desk study should be undertaken in order to determine the potential for protected species. The results of these, and any further surveys could impact on site selection and bridge design. A Construction Environmental Management Plan (CEMP) will include a method of works to be followed during construction to protect ecological assets on, or adjacent to, the site.
Flood Risk	A Flood Risk Assessment (FRA) will detail the proximity of the site to Flood Zone 3 and how any risk of flooding will be minimised. Consultation with the Environment Agency will be required in order to determine flood levels. The results of this could impact on site selection and bridge design.
Land Quality	A phase 1 contamination risk assessment should be undertaken to determine whether there are any risk to future site users and adjacent sensitive receptors. If ground disturbance is required the Construction Environmental Management Plan (CEMP) will include measures for dealing with unexpected contamination and for working in contaminated ground if encountered, e.g. Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE).
Waste	All waste produced during construction will be managed in accordance with Waste Management and Duty of Care Regulations, which will be set out within the Construction Environmental Management Plan (CEMP).
Archaeology and Cultural Heritage	The archaeological and cultural heritage impacts of the proposals will need to be determined by a Historic Environment desk-based assessment, supported by consultation with Surrey County Council's archaeological advisors and the Conservation Officer advising Spelthorne Borough Council. For any proposals that effect the setting of Grade II* listed St Mary's church, English Heritage are the statutory consultees, whilst consideration of any effects on the Lower Sunbury conservation area or Grade II listed buildings will involve consultation with the Conservation Officer. A conservation area appraisal may be required.
Townscape and Visual	The Historic Environment desk-based assessment will feed into a wider consideration of townscape and visual impact during the site selection and design process. The visual impacts will need to be rigorously considered during design and assessment, taking particular account of valued views not only from the banks, but also from the river itself.

7.3. COMPARISON OF SITES AND CONCLUSION

7.3.1. As all sites are in close proximity, they all generally have the same environmental constraints. It should be noted that in a heritage context, all sites are subject to a common approach to due diligence. However the sites that introduce a bridge structure into the immediate vicinity of Sunbury's historic core (sites B, C and D) present not only constraints and need for caution, but also opportunities for enhancing and restoring the historic nature of the area. Particularly in relation to the indirect effects of the development on the heritage asset and historic character of the area; notably the Grade II* listed St Mary's the Virgin church and the River Thames. Most environmental aspects would require further assessments as outlined in Chapter 10. Therefore, at this stage, no sites can be completely discounted on environmental terms.

8. EVALUATION OF OPTIONS

8.1.1. In order to assess the viability of each of the five sites identified key design criteria were identified against which each in turn were judged:

8.1.1.1. **CONNECTIVITY** – How well does each site and potential crossing offer opportunities for connection with existing routes or create new linkages.

8.1.1.2. **COST** – Difficult to assess at this early stage, with no firm designs but each site was evaluated on the basis of experience and accepted rates for a series of key elements: landscaping, ramps and approach structures, primary and secondary spans, expected design and specialist fees and contingencies. The figures quoted can only be taken as indicative, but the ranking of crossings is felt to be a valid one, even at this early stage.

8.1.1.3. **BUILDABILITY** – How easy will it be to build the bridge taking into consideration factors such as accessibility, complexity of the crossing, the need for temporary works etc?

8.1.1.4. **AMENITY VALUE** – Other than the provision of a functional crossing what opportunities exist for each bridge to provide a wider positive civic contribution either to shape public space, as a catalyst for regeneration or to create a destination in its own right?

8.1.1.5. **VISUAL IMPACT** – What impact will each crossing have on its immediate surroundings and any key distant views to or from each site?

8.1.2. Table 8.1 evaluates each site against the chosen criteria offering comments in support of each evaluation.

8.1.3. At this early stage, with limited design information available, this evaluation cannot be deemed to be definitive but offers a considered assessment of each site's viability for future development.

In evaluating the sites a number of issues arose with particular sites that could potentially outweigh any redeeming quality a site might otherwise have. These have been highlighted in red in the table:

- The complex series of constituent elements required to make Site A work;
- The negative visual impact of Site D on important views of St Mary's Church from the south;
- The dis-connection between Site E and prevailing pedestrian and cycle routes.

Whilst not wishing to discount any of the sites at this early stage, careful consideration of these issues should be given if proposals for the sites in question are to be developed further.

8.1.4. Sites B and C both score well across the full range of criteria with Site B expected to be the most economical of the two, largely due to more favourable buildability issues.

Table 8.1: Evaluation Matrix

	Connectivity	Cost	Buildability	Amenity Value	Visual Impact
Site A **Weir Crossing**	**OK** Slightly remote and indirect route but good links to car park.	**Most Expensive** £4.65M-£6.5M	**Difficult** Multi-phased. Difficult access. **Complex temporary works.**	**Good** Access to existing Car Park.	**Low** Imposing approach structure but low impact main crossing
Site B **Flowerpot Green**	**Very Good** Direct links to road junction. On main desire line.	**Moderate** £4.1M-£5.2M	**Good** Accessible. Spacious. Long span.	**Very Good** Central location at heart of historic village.	**Medium** Imposing structure but less intrusive from Conservation Area
Site C **Church Street**	**Good** Direct connection with key road junction.	**Expensive** £4.5M-£5.65M	**Medium** Accessible but potentially disruptive. Long span.	**Very Good** Links to key listed buildings and St Mary's Church.	**Medium** Sensitive but opportunity to unlock area's potential.
Site D **King's Lawn**	**Medium** Slightly away from desire line.	**Moderate** £4.1M-£5.2M	**Difficult** Limited Space. Potential for disruption.	**Good** Reduces green space. Good links to Sunbury Park/ Walled Garden.	**High** **Impact on distant view of St Mary's**
Site E **Rivermead Island**	**Poor** **Remote from key desire lines.** Good connection to east.	**Potentially Least Expensive** £4.0M-£5.3M	**Good** Ample Space. Relatively short span.	**OK** Remote but links with large open space.	**Medium** Remote but high impact on underused amenity.

9. BRIDGE DESIGN

9.1.1. As stated above, the purpose of this study is not to determine the appearance, design or any material aspect of the potential footbridge crossings. This will take place in future stages.

9.1.2. However, in evaluating the five sites consideration has been given, and noted in the text, of the scale and type of likely structure required to achieve a crossing at each location, ranging from small simple spans and supporting structures, to a series of interconnected spans, to large single span structures.

9.1.3. Examples of each of these structural types, drawn from Ramboll's own work are given in the montage below for reference.

10. STATUTORY AND CONSULTATIVE STEPS

10.1. Bridge Design and Engineering

10.1.1. Work leading up to a full planning submission is likely to entail, as a minimum:

- 3d CAD model of bridge and site context
- Preparation of planning submission drawings to include:
  - Site Context Plan
  - GA plans and sections
  - Detail Plans and sections, as required
  - Key details
- Preparation of 'Approval In Principle' document
- Advise on need for further geotechnical, environmental or other such investigations
- Details of bridge and abutment structures
- Proposals for colour, materials and finishes
- Lighting strategy

10.1.2. A detailed 'Design and Access Statement' will be required by the statutory consultees and might include:

- Background
- Planning Policy Context
- Design statement on objectives and concept for the crossing
- Predicted Bridge Usage
- Bridge Form
- Materials and finishes
- Safety and Security measures
- Navigation issues
- Access for all
- Bridge operation and maintenance
- Environmental and technical considerations
- Sustainability
- Landscape Design
- Construction methodology

10.2. Transport

10.2.1. Formal consultations should be engaged with Surrey County Council (acting as the Local Highway Authority), Spelthorne Borough and Elmbridge Borough Councils (acting as the Local Planning Authorities). Consultative opinion may also be obtained from local residents' associations and the local parish councils. In the case of Surrey County Council, their consultation and engagement policy should be followed.

10.2.2. A very high-level preliminary view from Sustrans on the general principle of a new crossing in this location and thoughts on the options has been obtained.

10.2.3. Sustrans has indicated that there are no specific network development plans for this area; however Sustrans can assist in the development of any plans. Sustrans is aware that it has been an ambition for a long time to provide a new bridge in this area and Sustrans is strongly in support of any improved access for walking and cycling.

10.2.4. Sustrans does not have a particular preference for any one location as this would need more thought to optimise local networks on both sides of the river if a bridge is built.

10.3. Environment

10.3.1. Table 10.1 outlines the consultation that will need to take place in relation to each environmental aspect.

Table 10.1: Environmental Consultation

Environmental Aspect	Consultation
Air Quality	Environmental Health Officer/Air Quality Officer at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough)
Noise	Environmental Health Officer/Noise Officer at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough)
Ecology	Environment Agency, Ecology Officer at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough), Local Wildlife Trust and Natural England.
Flood Risk	Environment Agency
Land Quality	Environmental Health Officer/Contaminated Land Officer at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough) and Environment Agency.
Waste	Waste Officer (or equivalent) at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough)
Archaeology and Cultural Heritage	Archaeological Officer and Conservation Officer at the County Planning Authority (Surrey County Council). English Heritage is the statutory consultee for the Grade II* listed St Mary the Virgin's church. The governance of some heritage assets, such as Sunbury Lock, weir and donkey bridge is the responsibility of the Environment Agency.
Townscape and Visual	Local Planning Authorities (Spelthorne Borough and Elmbridge Borough). English Heritage. Environment Agency.

11. FUNDING OPPORTUNITIES

11.1. Introduction

11.1.1. Funding opportunities and mechanisms are detailed in this section.

11.2. Surrey Transport Plan

11.2.1. It is acknowledged that, within the context of significant budget pressures, funding to support implementation will need to be sought from multiple sources.

11.2.2. The Surrey Transport Plan Cycling Strategy indicates that:

> *"Capital funding for infrastructure improvements will be sought from developer contributions, local highway budgets and external sources such as government and Local Enterprise Partnership grants."*

11.3. Spelthorne Transport Strategy and Forward Programme

11.3.1. The Spelthorne Transport Strategy and Forward Programme includes schemes which have been identified for funding. No particular mention has been made for a potential cycle/footbridge in the Lower Sunbury area; however the programme identifies short-, medium- and long-term schemes and packages of measures which seek to deliver improvements in line with the objectives of the Transport Strategy.

11.3.2. The Spelthorne Transport Strategy and Forward Programme states that:

> *"The schemes included in the Forward Programme are largely schemes which require funding from different sources and hence will generally be beyond the scope of local committee capital funding. (…)*
>
> *In general, the schemes are not intended to provide additional network capacity but seek to manage the existing network and provide more sustainable transport choices. (…)*
>
> *The Forward Programme will be revised on a yearly basis by the Local Committee to take account of available funding and to ensure (…) there are no other more effective alternative options available which address the impacts of growth and policy objectives."*

11.3.3. At borough-wide level, Scheme 1 entitled "Spelthorne Cycleways: Upgrading the existing cycleways across the borough and introducing new routes to make a continuous network" aims at improving accessibility and safety for cyclists and ultimately enabling and encouraging modal shift across the borough. It is currently at scheme identification delivery stage which means "the need for a scheme is identified, initial drawings may have been produced." There may be scope for inclusion of the proposed cycle/footbridge within the list of schemes in the Forward Programme within a future revision of the Forward Programme.

11.3.4. The Spelthorne Transport Strategy and Forward Programme details the potential funding sources which could be a combination of:

- *Developer contributions through Section 106 agreements and the Community Infrastructure Levy (CIL);*
- *Capital funding by the county council (government grants such as the Local Transport Plan (LTP) allocations, Local Sustainable Transport Fund (LSTF) and major schemes funding available from 2015 from designated Local Transport Bodies; and,*
- *County Council capital funding allocated for more strategic schemes by the Spelthorne Local Committee Capital funding by the Borough Council Capital funding from the EM3 Local Enterprise Partnership. A number of schemes have been submitted by the county council to the LEP for consideration in their strategic economic plan."*

12. IDENTIFICATION OF FURTHER STUDIES

12.1. Bridge Design and Engineering

12.1.1. Work in this initial feasibility study has necessarily focused on the physical characteristics of each site and their potential to accommodate a cycle/footbridge with the desired connectivity.

12.1.2. This study hopefully allows a narrowing down of options and makes a more detailed assessment of actual designs at the more preferred sites feasible.

12.1.3. A potential scope of work for a design feasibility study, perhaps comparing three sites, might be:

- Review available documentation and site information;
- Review available topographical, and other, survey information;
- Obtain available information on existence of public services and existing structures;
- Review all relevant site information potentially affecting the design;
- Review preferred horizontal and vertical alignments;
- Develop basic concept options;
- Develop drawings for each bridge option in context;
- Provide sufficient information to allow verification of costs for each bridge;
- Present concept alternatives to client;
- With Client team and stakeholders, identify preferred alternative.

12.2. Transport

12.2.1. A business case should be prepared to identify funding opportunities and sources, followed by a case scheme appraisal to test the design of the scheme using a cost-benefit analysis approach (WebTag-style appraisal).

12.3. Environment

12.3.1. Table 12.1 outlines the further work that would need to be undertaken in relation to each environmental aspect.

Table 12.1: Further Recommended Environmental Work

Environmental Aspect	Further Assessment
Air Quality	Consultation with the Environmental Health Officer/Air Quality Officer at the Local Planning Authorities to confirm further assessments.
Noise	Consultation with the Environmental Health Officer/Noise Officer at the Local Planning Authorities to confirm further assessments.
Ecology	Consultation with Environment Agency, Ecology Officer at the Local Planning Authorities (Spelthorne Borough and Elmbridge Borough), Local Wildlife Trust and Natural England to confirm the need for a Phase I Habitat Survey, which may identify the need for further protected species surveys.
Flood Risk	Consultation with the Environment Agency to determine the flood levels and confirm the need for an FRA and other associated assessments.
Land Quality	Consultation with the Environmental Health Officer/Contaminated Land Officer at the Local Planning Authorities to confirm the need for a Phase I Contamination Risk Assessment.
Waste	Consultation with the Waste Officer (or equivalent) to confirm further assessments.
Archaeology and Cultural Heritage	Consultation with the Archaeological Officer and Conservation Officer at the County Planning Authority, English Heritage and Environment Agency to confirm the need for a Historic Environment desk-based assessment.
Townscape and Visual	Consultation with the Archaeological Officer and Conservation Officer at the County Planning Authority, English Heritage and Environment Agency to confirm the need for a Historic Environment desk-based assessment.

12.3.2. The consultation and assessments would inform the design of the structure and progress the project towards a planning submission. In advance of the planning submission, the project would need to be screened against the Environmental Impact Assessment Regulations in consultation with the Local Planning Authorities.