

Market Sounding Questionnaire Response Key Findings

The Rotherhithe to Canary Wharf River Crossing Project (R2CW) has received a strong level of interest following the publication of a PIN on 19th October 2016. Accordingly, a large number of organisations submitted a completed MSQ across multiple disciplines. These organisations were then classified into the following groups: Tier 1 Contractors; Tier 2 Specialist Contractors (both referred to as 'Contractors'); Architectural Practices; Multidisciplinary Consultant; Specialist Consultants and; Consulting Engineers (referred to as 'ACEs').

1. Appetite

- 1.1. Respondents demonstrated a clear interest in the Project overall. Generally, Respondents have greater appetite to deliver a Bridge infrastructure solution compared to a Tunnel (albeit indicative and subject to Project assumptions). This is also demonstrated through the Project Phases; Design, Engineering and Construction. Only Operate and Maintain was favoured for a Tunnel infrastructure solution.
- 1.2. The majority of Respondents did not identify any critical factors that impact upon their interest in any aspects of the R2CW River Crossing (albeit at a very early planning phase).
- 1.3. The majority of Respondents agree with TfL's current views, concerning rejected River Crossing solutions for this Project. There is broad consensus for the options put forward by TfL. Whilst a small number of Respondents did believe that alternative options such as a Cable Car or Repurposing of the existing Rotherhithe Tunnel could be deemed as possible solutions, counter-views were also provided that would suggest that either crossing option would unlikely fulfil nor meet the purpose or objectives of this Project. Consequently, a bridge or tunnel solution is deemed the most appropriate by Respondents.

2. Programme Timetable & Commercial

- 2.1. On average Respondents believe the completion of the River Crossing project should range between 46 and 89 months when not accounting for any overlap of the phases involved. The Respondents further identify that an optimal/preferred time period in order to complete this River Crossing should take 62.3 months (5.2 years). All Respondents believe a River Crossing between Rotherhithe and Canary Wharf opening in 2022 is achievable. This is however subject to the outcome of Project assumptions.
- 2.2. Respondents have provided their response, based on any River Crossing solution. This may therefore not be truly representative of a particular River Crossing solution (i.e. Tunnel or Bridge).
- 2.3. Respondents have provided a substantial number of considerations and constraints in response to achieving the indicative programme. These key themes include; wide-ranging and early Stakeholder engagement; the Procurement route and Project funding arrangements; Logistics and site access within a built-up environment; Lead times for key components; Plant and machinery and also Environmental considerations.

3. Capacity and Capability

- 3.1. Respondents have all shown that they have some capability for the different Project Activities¹ associated with the River Crossing. As anticipated, Contractors and ACE's, identify in-house capabilities across different Project Activities. Contractors appear to have capabilities across the spectrum while ACE's tend to have in-house capabilities with pre-construction type Project Activities.
- 3.2. Percentage of sub-contracted activities provided by Respondents is primitive at this stage of the Project. As the scope of works and requirements are yet to be confirmed, Respondents either did not provide an approximate value or were conservative in response.

¹ Respondents have provided a list of capabilities in their MSQs, which are summarised in the following table.

- 3.3. Resource and skills shortages have been acknowledged to have a possible (if only minor) impact on the delivery of the R2CW River Crossing due to the relatively small scale of this Project in relation to other UK Infrastructure projects taking place within the next 5 years. Various challenges to the available resource pool are identified by the Respondents at tier 1 and 2 levels as well as possible constraints to plant and machinery resources within the marine construction environment.
- 3.4. Current infrastructure projects for tunnelling outweigh those for bridge construction (in size and value) over the next 5 years within the UK, and so tunnelling specialist resources are more likely to be constrained.
- 3.5. In total, Respondents have worked on over 1000 more bridge projects than tunnel projects in the past 10 years, suggesting the market has more experience delivering bridges. In addition, over 450 more Pedestrian / Cycle bridges have been delivered than Pedestrian / Cycle tunnels, further indicating that the market has greater experience in delivering bridges. The proportion of the amount of contracts ACE and Contractors have worked on, for any form of River Crossing Solution is split 53/47% respectively. A relatively even split, suggesting that both type of suppliers have experience in delivering similar projects.
- 3.6. Respondents have worked on a relatively small number of bridge or tunnel river crossings valued at £100m or over in the past 10 years.
- 3.7. Such solutions as Swing, Vertical Lift, Bascule, Transporter, Tilting and Retractable Bridges have all been recognised as potentially suitable for R2CW. The benefits and constraints for each type of bridge solution are also provided. Generally these include a large span width between landing sites and also the need for passing vessels to pass a bridge solution easily. Respondents highlighted that the functionality of the crossing should be considered in relation to the aesthetics, ensuring that the correct balance is achieved.
- 3.8. A tunnel based solution for the R2CW River Crossing, would provide minimal impact to the river and passing vessels, and would require less people resource to manage the crossing. Options include immersed tunnels, single and twin bored tunnels. Increased costs in the need for more land than a bridge solution and greater construction and maintenance costs would make a tunnel solution less attractive compared to a bridge.

4. Commercials

- 4.1. Of the Possible Procurement Route/Options, a Design Competition is considered to be the least appropriate/ favoured approach amongst Respondents. However, when asked specifically about supplier appetite to participate in a Design Competition, 61% Respondents confirmed that they would be interested.
- 4.2. Design and Build Two-stage is considered to be the most appropriate / favoured option with 59% of Respondents ranking it either as 1st or 2nd. This option was also the most accepted option, with the least amount of suppliers expressing it as their 6th or 7th option.
- 4.3. Both benefits and constraints associated with the use of PPP/PFI approach have been highlighted by Respondents. Their appetite for a PPP/PFI is minimal and the uncertainty around how such an approach could be modelled commercially has been highlighted.
- 4.4. Alternative procurement approaches identified by Respondents include the use of existing TfL Frameworks and also splitting the requirements in to smaller work packages.
- 4.5. Only 25% of Respondents clearly stated that should a particular procurement approach be taken, then they would stop pursuing the R2CW River Crossing Project further.
- 4.6. Four main themes were commonly noted by Respondents as specific measurables that would add most value for both parties in a contractual relationship for R2CW. These include; Collaboration, Commercial, Design and also Environmental and Safety.

- 4.7. Opportunities for reducing Whole Life Costs in either a bridge or tunnel solution were provided by the Respondents. The key opportunity themes varied across both River Crossing solutions however the common themes include; Cost minimisation; Revenue Generation; Programme and Procurement Approach and Operations (staffing and management of the River Crossing asset).

5. Risks and Opportunities

- 5.1. Risks and opportunities recognised by Respondents in relation to this River Crossing were varied in nature. However common themes were identified as per below.

Bridge River Crossing Solution

<i>Top 3 Risks</i>	<i>Top 3 Opportunities</i>
1. Stakeholder Management	1. Revenue Streams
2. Ground Conditions	2. Construction Materials
3. Planning and Approval	3. Innovation of Design and also Efficiency of the Project

Tunnel River Crossing Solution

<i>Top 3 Risks</i>	<i>Top 3 Opportunities</i>
1. Ground Conditions	1. Advertising/Sponsorship Revenue
2. Public Perception of the Tunnel	2. Potential of Toll Revenue
3. Construction Impact on the Environment	3. Synergies with other London Infrastructure Projects

6. Constraints, Technical & General

- 6.1. **R2. Functional for Mobility Impaired Users (MIU):** Respondents noted that they will be able to deliver a bridge or tunnel that will be appropriate for MIUs. Lifts / Ramps will be utilised to ensure that the solution is adequate for MIUs. Capex / Opex should be considered as well as safety risks i.e. emergency access and rescue risks
- 6.2. **R8. Availability of solution:** Consensus from 67% of suppliers, identify that a bridge being available at all times is not feasible due to the shipping; any movable bridge will have gaps in availability to allow ships to pass. Weather conditions are recognised to potentially restrict the availability of the bridge such as a risk of flooding that could affect availability. The tunnel option however could provide availability at all times.
- 6.3. **R9. Lifecycle:** Respondents were in agreement that the 120 year design life was feasible subject to an effective inspection and maintenance strategy / regime. However, M&E components will have to be replaced to maintain the bridge.
- 6.4. **R10. Through life costs:** Respondents identify that a design, build and maintain solution could minimise maintenance intervention and associated costs while a moveable bridge will incur greater maintenance costs than a static bridge. Respondents suggested using durable materials, BIM and ensuring best practice in the M&E design to maximise value.
- 6.5. **C1. Crossing shall not impede the passage of shipping traffic:** In general, Respondents identify the need for early consultation with the PLA to establish navigation channels early in the design phase, mitigate the impact on operations caused by river traffic on a bridge solution, and respecting PLA constraints during design, construction and operation. Furthermore, construction methodology should also look to minimise any potential access restrictions and impingement on navigation channel.
- 6.6. **C2. Ramp gradient shall not exceed 5% provision of safe sight-lines:** Respondents identify that this requirement is achievable (subject to dependencies and assumptions), however, infrastructure type is a significant factor to consider in order to achieve a requirement for a ramp gradient that does not exceed 5%.

- 6.7. **C3. Crossing shall be designed to avoid the risk of collisions between users:** An overwhelming consensus from 86% of suppliers identified the need to segregate lanes to separate pedestrians and cyclists.
- 6.8. **C5. Crossing congested management & Safety:** Respondents identify a solution of hard barriers, whilst recognising that depending on how they are implemented, it could be perceived as restrictive (and therefore deter users) and require additional land-take and further funding considerations.
- 6.9. **C7. Crossing shall not interfere with structures or live operations:** The majority of Respondents recognise that early client and stakeholder engagement in the design phase will ensure accurate and appropriate surveys are undertaken on the land, foreshore and river bed to condition of the structure / assets and minimise potential threat of existing asset disruption and / or damage.
- 6.10. **C8. Length of the closure shall inconvenience Crossing Users:** Respondents recognise that the solution would need to be designed around a clear performance specification (inc optimal open and close time), data from user and modal / traffic modelling assessments, and within a realistic financial envelope (i.e. a budget that supports Project needs).

7. Relevant Experience

- 7.1. 92% of suppliers provided supporting 'evidence' of direct working on similar projects within major capital cities and/or urban areas.
- 7.2. The majority of respondents provided comprehensive project, geographic and client reference lists. A consistent number of recent projects were referenced with supplier experiences across both Bridge and Tunnel River Crossing solutions.
- 7.3. MSQ respondents showed a high level of experience of working with the PLA across all disciplines. The extent of PLA working/interactions varied depending on the nature of the works and the role and/or responsibility of the supplier that responded, which is to be expected from an architect, consultant engineer and contracting organisations.