

# Tamar Bridge – Proposed Resurfacing 2021

Contract notice – supplementary information for discussion / provision to potential service providers – June 2020

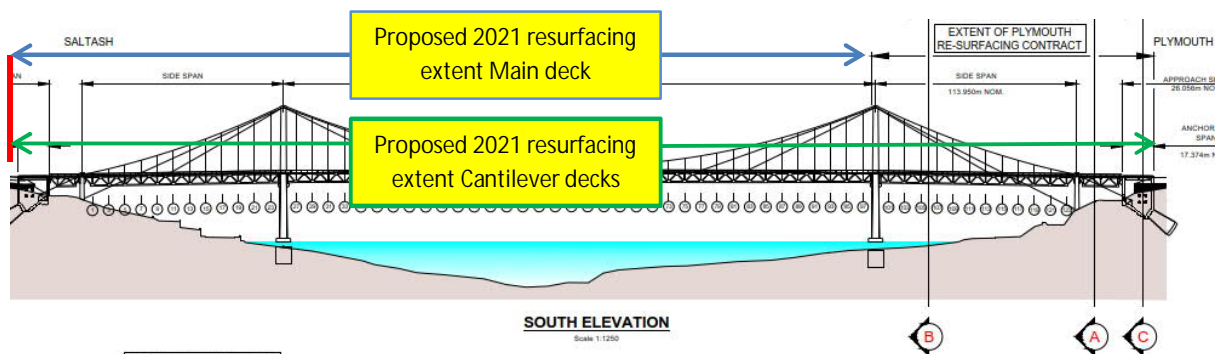
## Introduction

The Tamar Bridge resurfacing strategy has been a phased process which commenced in 2010 with the development of an overall surfacing strategy for the bridge together with specific recommendations for the Plymouth Side span and Approach span (main deck) which were in a poor condition at the time. Following completion of those Plymouth side resurfacing works in 2011 there was a five-year period of monitoring of the condition of the remaining surfacing at planned inspection intervals and some very minor surfacing maintenance activities.

In 2015 the surfacing strategy for the remaining residual areas of the surfacing installed during strengthening and widening (2001) was initially updated to take account of the better performance of the residual mastic surfacing compared to the assumptions in the original 2010 report (based on the monitoring / specialist inspections).

Following completion of specialist inspection and core sample testing in 2016 and the further findings of the 2017, 2018 and 2019 special inspections it has been recommended that preparations should now be undertaken for full resurfacing of the remaining main span and Saltash spans in 2021.

Tamar Crossings project team are therefore seeking to engage with suppliers to develop final plans for proposed resurfacing of the whole of the remaining deck areas.



## Background

### Plymouth side spans (Main deck only)

These were resurfaced in 2011 with a 55mm layer of "Gussasphalt" laid over a sprayed methyl methacrylate waterproofing layer. No works to the Plymouth main deck are proposed at this time.

### Remaining Main span and Saltash deck sections for resurfacing

The main deck (3 lane) carriageway and the entire lengths of the North and South Cantilevers are all "original" surfacing from the completion of the 2001 Strengthening and Widening. There are some relatively isolated patch repairs and overbanding repairs at a number of locations. There is a short area of more extensive repair material in the Eastbound lane on the main span side of the Plymouth Tower.

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The surfacing system in this zone consists of a rubberised bitumen waterproofing layer and a nominal 38mm thick layer of hand laid mastic asphalt with rolled chippings. The notional total depth is taken as 40mm.

This section of surfacing was 15 years old in 2016 and was therefore designated to be in the final period of its expected serviceable lifespan. Inspection and core sampling in 2016 showed continuation of the progressive deterioration of the system. Further inspections in 2017 ,2018 and 2019 have shown that the condition is continuing to deteriorate.

## Toll Plaza resurfacing

To assist with minimising longer-term traffic disruption Tamar Crossings project team are also seeking to potentially incorporate the resurfacing of the Plymouth Toll Plaza area from the end of the bridge deck resurfacing zone up to the interface boundary with the A38 at the Plymouth side. The existing surfacing is believed to be stone mastic asphalt SMA material. The extent of the area to be resurfaced is to be determined and the replacement surfacing specification is to be advised and these issues will be a topic for discussion during dialogue.

## Constraints

- The bridge must remain open to vehicular traffic with a minimum of one lane in each direction throughout the entire duration of these proposed works and two lanes in one direction and one lane in the other at specified peak times.
- The maximum thickness of the proposed surfacing system shall not exceed 55mm (nominal) and the minimum thickness shall not be less than 40mm (nominal) as part of the requirements for deflection control and wheel-load distribution into the structure. Although 55mm depth has already been used successfully on the Plymouth side there is a considerably more significant structural loading implication if it is proposed to be used over the full length of main span and the Saltash side. Preferred solutions will therefore minimise the depth as far as possible to the lower end of the permissible 40mm – 55mm range. Preferred solutions will also consider variance of the proposed thicknesses between the main deck and the cantilever lanes. The cantilever lanes experience lower traffic levels and preferred solutions will be at the lowest end of the thickness range. The North and South cantilevers shall have the same proposed surfacing thickness.
- Localised tapering of the edges of the surfacing along kerb lines and at expansion joints will be necessary for proposed systems exceeding 40mm nominal thickness. (This was successfully achieved on the 2011 Plymouth side resurfacing and is possible).

## Anticipated provisional solutions

The following systems are expected to be the most likely to be suitable as the choice for the final proposed system.

- Approved sprayed methyl methacrylate waterproofing system (2 layer) plus
- (Up to) a maximum of 55mm “Gussasphalt” type surfacing (as applied on Plymouth sidespans), or similar equivalent

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- Or 40mm Polymer modified mastic asphalt
- Or 40 mm Mastic asphalt (notionally as per the current 38mm system but with an additional 2mm depth to compensate for the removal of the original nominal 2mm bituminous waterproofing ).
- Other surfacing system materials may be considered provided they can be shown to be equivalent to the above and compatible with the other requirements of this document.
- Toll Plaza surfacing system will be different and the outline specification will be a subject for discussion in dialogue.

The outline specifications for discussion in dialogue will all be based on a design life of 20 years for the surfacing system. Tamar Crossings project team intend for this to result in a service life of 20 years subject to the assumptions of the design life (eg traffic effects) not being exceeded. The appointed surfacing contractor will be responsible for ensuring that all material supply and installation is compliant with final specifications.

## Competitive dialogue process

Tamar Crossings project team are seeking to engage in a competitive dialogue process with a likely maximum of 3 prequalified service providers to assist with the determination of the optimum solution.

The competitive dialogue process will allow Tamar Crossings project team to refine their scope and requirements so that they will be able to invite subsequent competitive tenders for these works (only by the remaining successful competitive dialogue participants)

The likely topics for dialogue will be:-

- Capability of supplier's proposed system to provide a (significant) maintenance free service life of 20 years at the thickness proposed (noting that it is of significant benefit to the structural performance to keep the thickness to the lower end of the allowable 40-55mm range and therefore 40mm systems are particularly favourable).
- Views of the suppliers on the extent that they can manage and provide the necessary associated services;
  - traffic management services,
  - expansion joint replacement services, (simple approach span main deck joints and the more significant Saltash tower main expansion joints (main deck and cantilever decks)).
  - minor deck weld repair services (structural welding) anticipated as likely to be a very minor requirement,
  - lane markings
  - discussions on coordination of surfacing and lane markings work with illuminated stud replacement contractor and any other contractors interfacing with these works).
- Resurfacing of the toll plaza area (currently SMA)– either directly, by subcontract, or by liaison with another party appointed by Tamar Crossings project team.

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- all necessary materials sampling and testing services,

Where suppliers are not in a position to provide particular associated services then Tamar Crossings project team will need to understand how the supplier will work collaboratively with other TC suppliers and service providers to minimise any interface problems with these associated tasks.

- Affordability considerations within the client's declared maximum budget.
- Cost-benefit considerations between different materials and different thicknesses.
- Technical performance considerations between different materials and different thicknesses in discussion with Tamar Crossings technical advisor on surfacing.
- Tolerance and ride-quality considerations with a preference for machine laid systems.
- Variations in the above between Main deck , Cantilever deck and Toll Plaza

Requirements for service providers

Potential service providers should consider their capabilities against the outline requirements of this document.

- Tamar Crossings project team will issue a Phase A contractor briefing and questionnaire to interested parties previously responding to the 2019 PIN and those now responding to the 2020 Contract Notice.
- Tamar Crossings project team will review the responses and select a likely maximum of the 3 highest scoring responses using the declared criteria.
- Tamar Crossings project team will issue an invitation Phase B to participate in dialogue to a likely maximum of 3 of those prequalified suppliers.