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A CASE STUDY: THE FORTH REPLACEMENT CROSSING

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1 INTRODUCTION

This paper describes the noise and vibration processes and controls to deliver Scotland's biggest infrastructure project for a generation.

The project is a result of the uncertainty of continued availability of the existing Forth Road Bridge (FRB). In 2005/6 corrosion in main suspension cables was identified with an approximate 10% loss in strength. The conclusions of the study identified that the FRB may have to close to heavy vehicles from 2017 and all traffic from 2021.

Responding to the study of potential crossing alternatives in December 2007, Scottish Ministers announced their intention to build a new cable stayed bridge to the west of the current FRB by 2016. This challenging timescale was necessary due to the potential need for future restrictions to Heavy Goods Vehicles using the FRB.

Transport Scotland immediately began design, procurement and statutory work on the fast tracked scheme – appointing the Jacobs Arup joint venture as design consultants in January 2008.

The main feature of the FRC managed crossing strategy was ensuring the existing Forth Road Bridge (FRB) infrastructure is retained and continues to provide public benefit. The FRB will become a dedicated public transport corridor carrying buses, taxis, motor cycles 125cc or less, pedestrians and cyclists. In the future it could also be adapted to carry a Light Rapid Transit (LRT) system, such as a tram. Retaining limited use of the FRB in this way will also reduce the weight of traffic on it and therefore extends the operational life of the bridge. This approach immediately delivered a saving of over £1.7 billion on the scheme's original estimated cost of £3.2 to £4.2 billion, which was based on a much wider replacement bridge including dedicated public transport lanes as well as a dual carriageway plus hard shoulders.

The Forth Crossing Bill (which included an Environmental Statement) was introduced in the Scottish Parliament in November 2009, the same month as the procurement process, which is one of the biggest the Scottish Government had ever undertaken. Following extensive Parliamentary scrutiny throughout 2010, the Forth Crossing Act was granted Royal Assent in January 2011.

On 8 June 2016, it was announced that completion of the Queensferry Crossing by the end of 2016 was no longer possible due to the greater than expected occurrence of strong winds since the deck lifting started in September 2015. However, the FRC Project remains on target for the contractual completion date of June 2017.

2 PLANNING

2.1 Environmental Statement

During 2008 the project assessed different route options following the newly published Design Manual for Roads and Bridges (DMRB HA213/08)[1], examples of which are presented in Figure 1.