

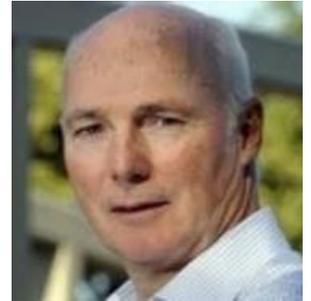
# The MacMillan Lecture Tuesday 7<sup>th</sup> March 2017



## The Queensferry Crossing

*by*

**David Climie & Michael Martin**



### Summary

The 19<sup>th</sup> Century Forth Rail Bridge became an iconic structure and the Forth Road Bridge followed in the 20<sup>th</sup> century. Now we have a third major bridge crossing between North and South Queensferry. All these bridges represent top class engineering but there are significant differences in the way that they have been designed and built. The Queensferry Crossing is one of the largest, most complex engineering projects undertaken in Scotland in recent years. The bridge is the longest three-tower cable stayed bridge in the world and is the tallest bridge in the UK. Its total length is 2.7 km with 4 km of new connecting roads.



The client team consists of the Major Projects Division of Transport Scotland along with consultants Arups and Jacobs. The contractor is a joint venture of Hochtief, American Bridge, Dragados and Morrison Construction. Designers for the contract are Ramboll, Sweco and Leonhardt Andra und Partners.

Lessons learned from the Forth Road Bridge are reflected in the design where special care was taken to ensure that the cables are protected from corrosion and the cable stayed arrangement allows for two cables to be removed and replaced without closing the bridge. Wind shielding on the bridge will allow heavy goods vehicles to cross in strong winds. The bridge is fitted with extensive condition monitoring systems so that its performance during its lifetime can be easily assessed.

The speakers described the plan for opening the bridge to the public and the post-construction support given within the contract. A separate contract was let to provide an intelligent transport system to make best use of the two road bridges.

The size and scale of the preparatory works and the infrastructure surrounding the bridge were shown. The difficulties in operation and working conditions have added to the complexity of the construction.

Michael Martin pointed out that although there were major technical difficulties in the construction, a major challenge was to get people from different firms and different nationalities to adopt a common approach in working together.

### Speakers

David Climie is Project Director, Transport Scotland and Michael Martin is Project Director, Forth Crossing Bridge Constructors.