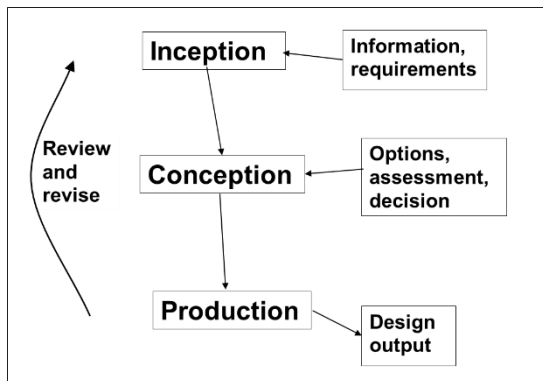




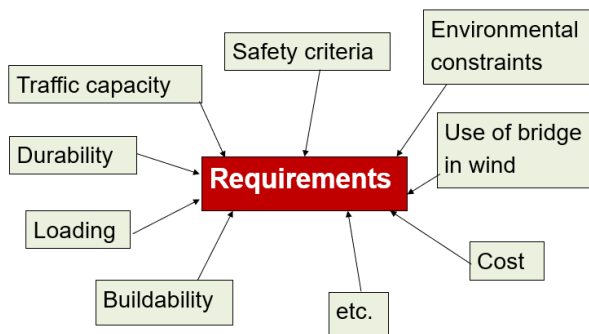
The Design Process for the Queensferry Crossing

Planning for a new crossing of the River Forth near Edinburgh started in 2006 and opened in 2017.

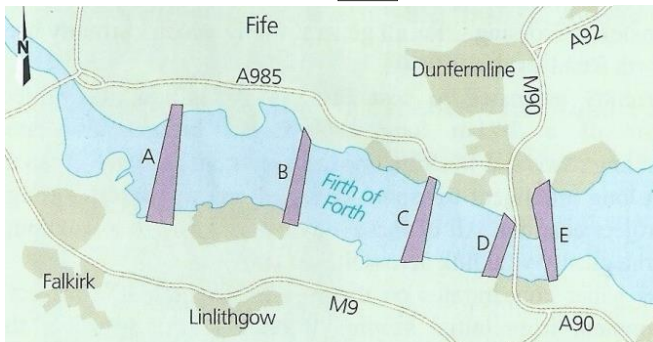
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Design process Here is a model of the design process. While attempts are made to get everything right first time, it is normally an iterative process



Requirements Getting the requirements right is a crucial issue. If important requirements are neglected then success is compromised



Options Crossing options considered included a bridge, a tunnel or a causeway (i.e. where the road is on an embankment that is built across the river). Evidence showed that a bridge would be the best option.

The positioning of the bridge is important. Several crossing 'corridors' were considered. All options are carefully tested for their potential to meet the requirements. A cable stayed bridge proved to be the best option.



Technical assessment. The final design was assessed against technical criteria - especially criteria for safety.

Extensive use of complex structural analysis was used to predict the forces in the structure under a range of types of loading: dead, load, live load, wind load.

The calculations were carefully checked by the designers and then the design (but not the calculations) was passed to other consultants who carried out an independent check to assess compliance with the regulations. This is because getting the calculations wrong could be catastrophic for a structure of this type.

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