3 CENTURIES OF **SPANNING THE FORTH**

FORTH REPLACEMENT CROSSING

19TH CENTURY

20TH CENTURY

21ST CENTURY

THE FIRTH OF FORTH BETWEEN NORTH & SOUTH QUEENSFERRY IS A SPECIAL PLACE FOR BRIDGES.

First came the monumental Forth Bridge, opened to rail traffic in 1890. Often referred to as the "Queen of Victorian bridges", it represents the pinnacle of 19th century civil engineering prowess and is one of the world's most recognisable and popular engineering wonders. An international symbol for Scotland, the Forth Bridge perfectly reflects the "great age of steam". In its 128th year of operation, 2011, it was nominated as a UNESCO World Heritage Site.

The majestic Forth Road Bridge represents the technological advances made by the mid 20th century in response to the burgeoning age of the motor car. It replaced the ferries which had plied the historic route for over 900 years. The UK's first long-span suspension bridge, it was also the longest suspension bridge outside of the USA when opened in 1964.

Now, in the 21st century, a new state-of-the-art road bridge is under construction which will take its place alongside its illustrious neighbours, giving pride to a new generation of Scots. In March 2011, the Forth Crossing Act gave the green light for the project to proceed. Construction work got underway in summer 2011 and the new bridge is scheduled to open in late 2016.

Where else in the world can you find three iconic bridges spanning three centuries and representing the highest standards of civil engineering achieved in each?

19TH CENTURY
20TH CENTURY
21ST CENTURY

21ST CENTURY:
THE FORTH REPLACEMENT CROSSING

- **Construction started**: Summer 2011
- **Scheduled opening**: Autumn 2016
- **Contract value**: £790 million
- **Why?** A new road bridge is needed due to deterioration in the condition of the existing bridge and concerns over its long term viability
- **Design**: Cable-stayed bridge with 3 towers reflecting design of world famous Forth Bridge
- **Design & Construct Contractor**: FCBC
- **Contractor's designers**: JV between Ramboll, Gifford, Grontmij and Leonhardt Andrä in collaboration with FCBC
- **Length**: 2.7km (1.6 miles)
- **Height of towers**: 207 metres above high tide (683 ft), equivalent to approx 22 London buses and 50 metres (25%) higher than existing Forth Road Bridge
- **Volume of steel**: 30,000 tonnes
- **Volume of concrete**: 150,000 cubic metres
- **Volume of wire**: 6,300 tonnes – or 23,000 miles – of stay cabling
- **Road**: 2 lane motorway with hard shoulder
- **Special feature**: modern wind-shielding to protect traffic from effects of wind buffeting

2011
Construction started

2016
Scheduled opening:
Autumn 2016

207
Height of towers:
207 metres (above high tide)

23,000
Length of stay cabling
in miles

20TH CENTURY:
THE FORTH ROAD BRIDGE

// **Construction started**: 1958
// **Bridge opened**: 4th September 1964
// **Cost of bridge**: £19.5 million
// **Design**: Suspension road bridge
// **Designed by**: Mott, Hay & Anderson and Freeman Fox & Partners
// **Consultant Architect**: Sir Giles Gilbert Scott, designer of the world famous British telephone kiosk
// **Contractor**: ACD (Arrol, Cleveland, Dorman Long)
// **Length**: 2.5km (1.5 miles)
// **Central span**: 1,006 metres (3,320ft) – longest in Europe at the time
// **Height of towers**: 150m (495ft) above mean water level, 50% higher than towers of the Forth Bridge
// **Volume of steel**: 39,600 tonnes
// **Volume of concrete**: 125,000 cubic metres
// **Volume of wire**: 6,350 tonnes or 30,000 miles – enough to stretch 1.25 times round the world
// **Traffic**: Each year, almost 24 million vehicles cross the bridge. Statistics show that, typically, 2% more vehicles head south than north

1958
Construction started

1964
Bridge opened by HM The Queen

30,000
Miles – length of wire in suspension cables

24million
No. of vehicles per annum.

19TH CENTURY:
THE FORTH BRIDGE

// **Construction started**: 1883
// **Bridge opened**: 4th March 1890
// **Cost of bridge**: £3.2 million
// **Design**: cantilever rail bridge
// **Designed by**: Sir John Fowler and Sir Benjamin Baker
// **Contractor**: Tancred Arrol
// **Length**: 2.5km (1.5 miles). The longest cantilever bridge in the world until 1917
// **Height of towers**: 100 metres (330 ft) above mean water level
// **Volume of steel**: 65,000 tonnes. The first all-steel bridge in the UK
// **No. of rivets**: 6.5million. The last rivet was inserted by HRH The Prince of Wales (later King Edward VII)

// **Manpower**: At its peak, 4,600 men were employed on the project
// **Myth**: Contrary to popular belief, painting the bridge was never continuous. However, a maintenance crew is permanently active on-site
// **Paint**: It takes over 200,000 litres of paint to cover the Forth Bridge's 145 acres of surface
// **Refurbishment**: A 10 year, £130m bridge refurbishment programme was completed in late 2011. A new long life polymer coating, as used on North Sea oil platforms, will last 25 years
// **Names**: The 3 famous double cantilevers have names: Queensferry, Inchgarvie and Fife
// **Comparison**: The Eiffel Tower in Paris, opened in 1889, is 324 metres high and contains 7,300 tonnes of wrought iron

1883
Construction started

1890
Bridge opened by HRH The Prince of Wales

6.5million
Rivets used on the bridge

2,500
The longest cantilever bridge (2,500 metres) in the world until 1917

REPRESENTING THE HIGHEST STANDARDS OF CIVIL ENGINEERING

TRANSPORT SCOTLAND
The client on the Forth Replacement Crossing project is the Scottish Government which is represented on site by Transport Scotland, the national transport agency for Scotland whose responsibilities cover trunk roads, rail, aviation and ferry transportation. Transport Scotland is accountable to the Scottish Parliament and the public through Scottish Ministers.

FCBC
The design & construct contract for the Forth Replacement Crossing project was awarded to FCBC (Forth Crossing Bridge Constructors), an international consortium comprising Hochtief Solutions, American Bridge International, Dragados and Morrison Construction. Together, the four partner companies bring to the project unparalleled experience on major civil engineering projects around the world.

CONTACT US

For further information or to contact the contractors involved with the Forth Replacement Crossing, please use the dedicated 24 hour Project Hotline:
0800 078 6910
(Free from landlines. Mobile phone operators may charge)

Or find out much more online:
www.forthreplacementcrossing.info

Community email:
enquiries@forthreplacementcrossing.info

Or call into the
Contact & Education Centre
C/o Forth Road Bridge Administration Office
South Queensferry
West Lothian
EH30 9SF

Opening times:
Mon-Fri: 09.00 – 17.30
Sat: 10.00 – 16.00

24 HOUR PROJECT HOTLINE

0800 078 6910

FIND OUT MORE ONLINE

FORTHREPLACEMENTCROSSING.INFO

This leaflet is printed on Naturalis, an environmentaly friendly paper approved by the Forest Stewardship Council and made in Fife.