

CIVIL STRUCTURES & BRIDGES



Our portfolio of projects range from complete engineering of FRP pedestrian and cycle bridges, to resolving weight issues on existing bridges, e.g. aerodynamic fairings or structural add-on walk-ways.

Advantages of FRP for bridges include:

- Maintenance reduction
- Extended life
- Transport and installation cost savings
- Reduced loads on foundations
- Designable coefficient of thermal expansion (CTE)
- Freedom of form for architectural feature projects

SAMPLE OF CIVIL STRUCTURES & BRIDGES PROJECTS UNDERTAKEN BY GURIT



**2012/
2013**

Rhyl Harbour Bridge, Rhyl, Wales, UK

Problem: Cycle bridge required to have lifting decks to allow harbour access to marine traffic. Light weight required to reduce lifting mechanism cost. Shallow spans to permit lifeboat access below without opening bridge.

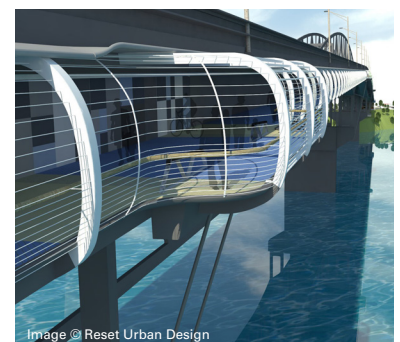
Solution: FRP bridge which is virtually maintenance free and able to be lifted with minimal power consumption compared to a metal equivalent.

Skypath, Auckland, New Zealand

Problem: Auckland harbour bridge has not provided any walking or cycling access since 1969. Auckland wanted to add pedestrian and cycle traffic without impacting vehicle traffic flow.

Solution: Addition of a light weight composite tunnel attached to the side of the existing bridge.

2011 -





2010

Bradkirk Rail Bridge, Blackpool, UK

Problem: High maintenance cost of existing steel bridge reaching end of life. Limited road access for crane. Increase in clearance for future electrification meant taller, heavier piers hence bridge had to be lighter than previous steel spans.

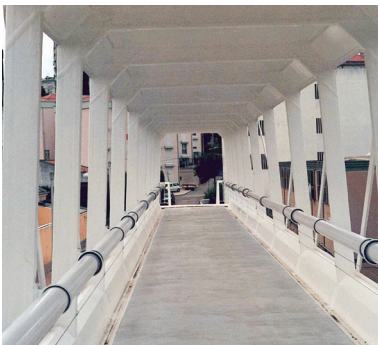
Solution: FRP bridge which is virtually maintenance free, can be lifted into place over night preventing costly rail closures. Spans weighed 1.6 tonnes versus 16 tonnes for steel.

Whitestone Bridge Fairing, The Bronx, New York

Problem: Bridge deck was reinforced to avoid aeroelastic instability (galloping) seen on Tacoma Narrows bridge in 1940. This caused additional stress on main cable stays not designed for in 1939.

Solution: Steel trusses on the side of bridge were replaced with FRP aerodynamic fairings. This plus other replacements saved 6000 tons, or 25% of load on cables.

2003



1998

EXPO Bridge, Lisbon, Portugal

Problem: Three pedestrian bridges were needed to cross two roads and one rail line. Client wanted to reduce the amount of foundations needed plus having the ability to install the bridges with minimal disruption to busy city traffic.

Solution: A mixture of Carbon and Glass epoxy composite resulted in a bridge that weighed 6.2 tonnes for each 30m span.

DIRECT CONTACT



Luke McEwen (UK)
EMEA Civil, Vehicles and Renewables Practice

T +44 (0) 7739 261 601
E luke.mcewen@gurit.com

gurit@gurit.com
www.gurit.com