



## Strengthening of Two Major Highway Viaducts in Germany

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### Abstract

An entire generation of reinforced concrete highway bridges built in the post-war period in Germany is rapidly approaching the end of their lifespan. The federal government and regional highway departments have realized the necessity to replace these structures. Meanwhile measures need to be taken in order to extend the lifespan of the decaying bridges until such replacement becomes available. Two major highway viaducts in the federal state of Hessen provide examples for the temporary support of prestressed concrete bridges. These two realized structures show, how with smart customized measures critical bridges can be strengthened and an essential increase in lifespan can be achieved.

**Keywords:** bridges; strengthening; steel; prestressing.

### 1 Introduction

European highways have experienced a steady increase in daily vehicle numbers and axle weights in the past decades. As a consequence the total heavy freight traffic on German roads has approximately doubled in the last 20 years, with authorities anticipating a further increase in the future [1].

More than half of the bridges in the German highway network however have been constructed before the 1980s and are rapidly approaching the end of their lifespan. The federal government and regional highway departments have realized the necessity to replace these structures and engage in extensive infrastructural investments to this end [2]. Construction projects of this magnitude however require careful preparation and need to pass through legal approval procedures.