

## New Fredrikstad Bascule Bridge, Norway

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### Summary

The New Fredrikstad Bascule Bridge is a vital part of a large infrastructure project in the city of Fredrikstad in southern Norway, connecting the newly developed urban part Værste to the centre of the city. Due to heavy boat traffic in Vesterelva, a bascule solution was chosen. The solution was developed through a process of in-situ architectural design involving both owners, bridge engineers and architects. The result is a bascule bridge with four lanes of traffic and two lines of walkways, operated through a central lifting beam and counterweight above the bridge deck, so called “Dutch Style”. The special design has led to challenging technical solutions to cope with dynamics, hydraulics and difficult soil conditions.

The construction work started in spring 2009 and is ongoing. The bridge is due to be opened in 2011.

**Keywords:** Architectural design, technical challenges, landmark.

### 1. Introduction

Fredrikstad is a charming city south of Oslo, close to the border to Sweden. The city has a history of being a strategic important city in Norway situated as it is in the outer part of the Oslo Fjord and at the river end of the longest river in Norway, Glomma. The harbor is very busy, earlier due to industry and trade, now due to a large amount of private speedboats, cabin cruisers and sail boats in the area. The city has also attracted the “Tall Ship Race”, being a gathering of large sail ships from early days.

The side river of Glomma called Vesterelva runs through the centre of Fredrikstad city, and the need of crossings are obvious here.

The first bascule bridge in Fredrikstad was opened in 1695 and is still in use! The island of Kråkerøy, within the city, is attached to mainland through a major bascule road bridge from 1957 and a minor pedestrian bascule bridge from 2003. Therefore, the concept ideas for a third connection, was easy to find. Growing traffic to the adjacent islands of Kråkerøy and Hvaler has increased traffic congestions through the city for years, especially in the weekends, made the need for such a connection vital to the local politicians, and in 2004, the tender for conceptual and preliminary design was launched. The project was won by the consulting company Aas-Jakobsen also involving the architect companies Plan Architects and Hvidt-Mølgaard.